CATEGORY 1 - SPECIAL MATERIALS AND RELATED EQUIPMENT, CHEMICALS, "MICROORGANISMS," AND "TOXINS"

***Note*:** *The Food and Drug Administration (FDA) and the Drug Enforcement Administration (DEA) may control exports of items subject to the EAR and on the Commerce Control List. BIS provides cross references to these other agency controls for convenience only. Therefore, please consult relevant FDA and DEA regulations for guidance related to the item you wish to export and do not rely solely on the EAR for information about other agency export control requirements. See Supplement No. 3 to part 730 (Other U.S. Government Departments and Agencies with Export Control Responsibilities) for more information.*

A. "END ITEMS," "EQUIPMENT," "ACCESSORIES," "ATTACHMENTS," "PARTS," "COMPONENTS," AND "SYSTEMS"

1A001 "Parts" and "components" made from fluorinated compounds, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $5000
GBS: N/A

List of Items Controlled

Related Controls: (1) Items "specially designed" or modified for missiles or for items on the U.S. Munitions List are "subject to the ITAR" (see 22 CFR parts 120 through 130, including USML Category XXI). (2) See also 1C009.
Related Definitions: N/A
Items:

a. Seals, gaskets, sealants or fuel bladders, "specially designed" for "aircraft" or aerospace use, made from more than 50% by weight of any of the materials controlled by 1C009.b or 1C009.c;

b. [Reserved]

1A002 "Composite" structures or laminates, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
NP applies to 1A002.b.1 in the form of tubes with an inside diameter between 75 mm and 400 mm	NP Column 1
AT applies to entire entry	AT Column 1

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1,500; N/A for NP; N/A for "composite" structures or laminates controlled by 1A002.a, having an organic "matrix" and made from materials controlled by 1C010.c or 1C010.d.
GBS: N/A

Special Conditions for STA

STA: License Exception STA may not be used to ship any item in this entry to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCNs 1A202, 1C010, 1C210, 9A010, and 9A110. (3) "Composite" structures "specially designed" for missile applications (including "specially designed" subsystems, "parts," and "components") are controlled by ECCN 9A110. (4) "Composite" structures or laminates "specially designed" or prepared for use in separating uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

a. Made from any of the following:

a.1. An organic "matrix" and "fibrous or filamentary materials" specified by 1C010.c or 1C010.d; *or*

a.2. Prepregs or preforms specified by 1C010.e;

b. Made from a metal or carbon "matrix", and any of the following:

b.1. Carbon "fibrous or filamentary materials" having all of the following:

b.1.a. A "specific modulus" exceeding 10.15×10^6 m; *and*

b.1.b. A "specific tensile strength" exceeding 17.7×10^4 m; *or*

b.2. Materials controlled by 1C010.c.

Note 1: *1A002 does not control "composite" structures or laminates made from epoxy resin impregnated carbon "fibrous or filamentary materials", for the repair of "civil aircraft" structures or laminates, having all of the following:*

a. An area not exceeding 1 m^2;

b. A length not exceeding 2.5 m; and

c. A width exceeding 15 mm.

Note 2: *1A002 does not control semi-finished items, "specially designed" for civilian applications as follows:*

a. Sporting goods;

b. Automotive industry;

c. Machine tool industry;

d. Medical applications.

Note 3: *1A002.b.1 does not apply to semi-finished items containing a maximum of two dimensions of interwoven filaments and "specially designed" for applications as follows:*

a. Metal heat-treatment furnaces for tempering metals;

b. Silicon boule production equipment.

Note 4: *1A002 does not apply to finished items "specially designed" for a specific application.*

1A003 Manufactures of non-"fusible" aromatic polyimides in film, sheet, tape or ribbon form having any of the following (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $200
GBS: N/A

List of Items Controlled

Related Controls: This entry does not control manufactures when coated or laminated with copper and designed for the production of electronic printed circuit boards. For "fusible" aromatic polyimides in any form, see 1C008.a.3.
Related Definitions: N/A
Items:

a. A thickness exceeding 0.254 mm; *or*

b. Coated or laminated with carbon, graphite, metals or magnetic substances.

1A004 Protective and detection equipment and "components", not "specially designed" for military use, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, CB, RS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
CB applies to chemical detection systems and dedicated detectors therefor, in 1A004.c, that also have the technical characteristic	CB Column 2
RS apply to 1A004.d	RS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: Yes for 1A004.a, .b, and .c.2.

List of Items Controlled

Related Controls: (1) See ECCNs 1A995, 2B351, and 2B352. (2) See ECCN 1D003 for "software" "specially designed" or modified to enable equipment to perform the functions of equipment controlled under section 1A004.c (Nuclear, biological and chemical (NBC) detection systems). (3) See ECCN 1E002.g for control libraries (parametric technical databases) "specially designed" or modified to enable equipment to perform the functions of equipment controlled under 1A004.c (Nuclear, biological and chemical (NBC) detection systems). (4) Chemical and biological protective and detection equipment specifically designed, developed, modified, configured, or adapted for military applications is "subject to the ITAR" (see 22 CFR parts 120 through 130, including USML Category XIV(f)), as is commercial equipment that incorporates "parts" or "components" controlled under that category except for domestic preparedness devices for individual protection that integrate "components" and "parts" identified in USML Category XIV(f)(4) when such "parts" or "components" are: 1) integral to the device; 2) inseparable from the device; and 3) incapable of replacement without compromising the effectiveness of the device, in which case the equipment is subject to the export licensing jurisdiction of the Department of Commerce under ECCN 1A004. (5) This entry does not control radionuclides incorporated in equipment listed in this entry - such materials are subject to the licensing jurisdiction of the Nuclear Regulatory Commission (See 10 CFR part 110).
Related Definitions: 1) 'Biological agents' means: pathogens or toxins, selected or

modified (such as altering purity, shelf life, virulence, dissemination characteristics, or resistance to UV radiation) to produce casualties in humans or animals, degrade equipment or damage crops or the environment. 2) 'Riot control agents' are substances which, under the expected conditions of use for riot control purposes, produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure. (Tear gases are a subset of 'riot control agents.')

Items:

a. Full face masks, filter canisters and decontamination equipment therefor, designed or modified for defense against any of the following, and "specially designed" "components" therefor:

Note: *1A004.a includes Powered Air Purifying Respirators (PAPR) that are designed or modified for defense against agents or materials, listed in 1A004.a.*

Technical Notes: *For the purpose of 1A004.a:*

1. Full face masks are also known as gas masks.

2. Filter canisters include filter cartridges.

a.1. 'Biological agents';

a.2. 'Radioactive materials';

a.3. Chemical warfare (CW) agents; *or*

a.4. 'Riot control agents', as follows:

a..4.a. α-Bromobenzeneacetonitrile, (Bromobenzyl cyanide) (CA) (CAS 5798-79-8);

a..4.b. [(2-chlorophenyl) methylene] propanedinitrile, (o-Chlorobenzylidenemalononitrile) (CS) (CAS 2698-41-1);

a..4.c. 2-Chloro-1-phenylethanone, Phenylacyl chloride (ω-chloroacetophenone) (CN) (CAS 532-27-4);

a..4.d. Dibenz-(b,f)-1,4-oxazephine, (CR) (CAS 257-07-8);

a..4.e. 10-Chloro-5, 10-dihydrophenarsazine, (Phenarsazine chloride), (Adamsite), (DM) (CAS 578-94-9);

a..4.f. N-Nonanoylmorpholine, (MPA) (CAS 5299-64-9);

b. Protective suits, gloves and shoes, "specially designed" or modified for defense against any of the following:

b.1. 'Biological agents';

b.2. 'Radioactive materials'; *or*

b.3. Chemical warfare (CW) agents;

c. Detection systems, "specially designed" or modified for detection or identification of any of the following, and "specially designed" "components" therefor:

c.1. 'Biological agents';

c.2. 'Radioactive materials'; *or*

c.3. Chemical warfare (CW) agents;

d. Electronic equipment designed for automatically detecting or identifying the presence of "explosives" (as listed in the annex at the end of Category 1) residues and utilizing 'trace detection' techniques (*e.g.,* surface acoustic wave, ion mobility spectrometry, differential mobility spectrometry, mass spectrometry).

Technical Note: *'Trace detection' is defined as the capability to detect less than 1 ppm vapor, or 1 mg solid or liquid.*

Note 1: *1A004.d does not apply to equipment "specially designed" for laboratory use.*

Note 2: *1A004.d does not apply to non-contact walk-through security portals.*

Note: *1A004 does not control:*

a. Personal radiation monitoring dosimeters;

b. Occupational health or safety equipment limited by design or function to protect against hazards specific to residential safety or civil industries, including:

1. *Mining;*
2. *Quarrying;*
3. *Agriculture;*
4. *Pharmaceutical;*
5. *Medical;*
6. *Veterinary;*
7. *Environmental;*
8. *Waste management;*
9. *Food industry.*

Technical Notes:

1. *1A004 includes equipment, "components" that have been 'identified,' successfully tested to national standards or otherwise proven effective, for the detection of or defense against 'radioactive materials' 'biological agents,' chemical warfare agents, 'simulants' or "riot control agents," even if such equipment or "components" are used in civil industries such as mining, quarrying, agriculture, pharmaceuticals, medical, veterinary, environmental, waste management, or the food industry.*

2. *'Simulant': A substance or material that is used in place of toxic agent (chemical or biological) in training, research, testing or evaluation.*

3. *For the purposes of 1A004, 'radioactive materials' are those selected or modified to increase their effectiveness in producing casualties in humans or animals, degrading equipment or damaging crops or the environment.*

1A005 Body armor and "specially designed" "components" therefor, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, UN, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
UN applies to entire entry	See § 746.1(b) for UN controls.
AT applies to entire entry	AT Column 1

***License Requirements Notes*:** 1. Soft body armor not manufactured to military standards or specifications must provide ballistic protection equal to or less than NIJ level III (NIJ 0101.06, July 2008) to be controlled under 1A005.a. 2. For purposes of 1A005.a, military standards and specifications include, at a minimum, specifications for fragmentation protection.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: Yes, except UN

List of Items Controlled

Related Controls: (1) Bulletproof and bullet resistant vests (body armor) providing NIJ Type IV protection or greater are "subject to the ITAR" (see 22 CFR 121.1 Category X(a)). (2) Soft body armor and protective garments manufactured to military standards or specifications that provide protection equal to NIJ level III or less are classified under ECCN 1A613.d.1. (3) Hard armor plates providing NIJ level III ballistic protection are classified under ECCN 1A613.d.2. (4) Police helmets and shields are classified under ECCN 0A979. (5) Other personal protective "equipment"

"specially designed" for military applications not controlled by the USML or elsewhere in the CCL is classified under ECCN 1A613.e. (6) For "fibrous or filamentary materials" used in the manufacture of body armor, see ECCN 1C010.

Related Definitions: N/A
Items:

a. Soft body armor not manufactured to military standards or specifications, or to their equivalents, and "specially designed" "components" therefor;

b. Hard body armor plates that provide ballistic protection less than NIJ level III (NIJ 0101.06, July 2008) or national equivalents.

***Notes to ECCN 1A005**:*

1. This entry does not control body armor when accompanying its user for the user's own personal protection.

2. This entry does not control body armor designed to provide frontal protection only from both fragment and blast from non-military explosive devices.

3. This entry does not apply to body armor designed to provide protection only from knife, spike, needle or blunt trauma.

1A006 Equipment, "specially designed" or modified for the disposal of improvised explosive devices, as follows (see List of Items Controlled), and "specially designed" "components" and "accessories" therefor.

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

***License Requirement Note:** 1A006 does not apply to equipment when accompanying its operator.*

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: Equipment "specially designed" for military use for the disposal of improvised explosive devices is "subject to the ITAR" (see 22 CFR parts 120 through 130, including USML Category IV).
Related Definitions: 'Disruptors' - Devices "specially designed" for the purpose of preventing the operation of an explosive device by projecting a liquid, solid or frangible projectile.
Items:

a. Remotely operated vehicles;

b. 'Disruptors'.

1A007 Equipment and devices, "specially designed" to initiate charges and devices containing "energetic materials," by electrical means, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
NP applies to 1A007.b, as well as 1A007.a when the detonator	NP Column 1

firing set meets or exceeds the parameters of 3A229.	
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: High explosives and related equipment "specially designed" for military use are "subject to the ITAR" (see 22 CFR parts 120 through 130). This entry does not control detonators using only primary explosives, such as lead azide. See also ECCNs 0A604, 3A229, and 3A232. See 1E001 for "development" and "production" technology controls, and 1E201 for "use" technology controls.
Related Definitions: N/A
Items:

a. Explosive detonator firing sets designed to drive explosive detonators specified by 1A007.b;

b. Electrically driven explosive detonators as follows:

b.1. Exploding bridge (EB);

b.2. Exploding bridge wire (EBW);

b.3. Slapper;

b.4. Exploding foil initiators (EFI).

***Technical Notes**:*

1. The word initiator or igniter is sometimes used in place of the word detonator.

2. For the purpose of 1A007.b the detonators of concern all utilize a small electrical conductor (bridge, bridge wire, or foil) that explosively vaporizes when a fast, high-current electrical pulse is passed through it. In non slapper types, the exploding conductor starts a chemical detonation in a contacting high explosive material such as PETN (pentaerythritoltetranitrate). In slapper detonators, the explosive vaporization of the electrical conductor drives a flyer or slapper across a gap, and the impact of the slapper on an explosive starts a chemical detonation. The slapper in some designs is driven by magnetic force. The term exploding foil detonator may refer to either an EB or a slapper-type detonator.

1A008 Charges, devices and "components", as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, UN, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $3,000 for .a through .c;
$6,000 for .d.
GBS: N/A

List of Items Controlled

Related Controls: (1) All of the following are "subject to the ITAR" (see 22 CFR parts 120 through 130):

a. High explosives and related equipment "specially designed" for military use;

b. Explosive devices or charges in this entry that utilize USML controlled energetic materials (See 22 CFR 121.1 Category V), if they have been specifically designed, developed, configured, adapted, or modified for a military application;

c. Shaped charges that have all of the following a uniform shaped conical liner with an included angle of 90 degrees or less, more than 2.0 kg of controlled materials, and a diameter exceeding 4.5 inches;

d. Detonating cord containing greater than 0.1 kg per meter (470 grains per foot) of controlled materials;

e. Cutters and severing tools containing greater than 10 kg of controlled materials;

f. With the exception of cutters and severing tools, devices or charges controlled by this entry where the USML controlled materials can be easily extracted without destroying the device or charge; *and*

g. Individual USML controlled energetic materials in this entry, even when compounded with other materials, when not incorporated into explosive devices or charges controlled by this entry or 1C992.

(2) See also ECCNs 1C011, 1C018, 1C111, 1C239, and 1C608 for additional controlled energetic materials. See ECCN 1E001 for the "development" or "production" "technology" for the commodities controlled by ECCN 1A008, but not for explosives or commodities that are "subject to the ITAR" (see 22 CFR parts 120 through 130).

Related Definitions: N/A
Items:

a. 'Shaped charges' having all of the following:

a.1. Net Explosive Quantity (NEQ) greater than 90 g; *and*

a.2. Outer casing diameter equal to or greater than 75 mm;

b. Linear shaped cutting charges having all of the following, and "specially designed" "components" therefor:

b.1. An explosive load greater than 40 g/m; *and*

b.2. A width of 10 mm or more;

c. Detonating cord with explosive core load greater than 64 g/m;

d. Cutters, not specified by 1A008.b, and severing tools, having a NEQ greater than 3.5 kg.

Technical Note: *'Shaped charges' are explosive charges shaped to focus the effects of the explosive blast.*

Note: *The only charges and devices specified in 1A008 are those containing "explosives" (see list of explosives in the Annex at the end of Category 1) and mixtures thereof.*

1A101 Devices for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures, for applications usable in rockets, missiles, or unmanned aerial vehicles capable of achieving a "range" equal to or greater than 300 km or their complete subsystems.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See also 1C101. (2) For commodities that meet the definition of defense articles under 22 CFR 120.3 of the International Traffic in Arms Regulations (ITAR), describes similar commodities "subject to the ITAR" (See 22 CFR parts 120 through 130, including USML Category XIII).
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1A102 Resaturated pyrolized carbon-carbon "parts" and "components" designed for rockets, missiles, or unmanned aerial vehicles capable of achieving a "range" equal to or greater than 300km. (These items are "subject to the ITAR." See 22 CFR parts 120 through 130).

1A202 Composite structures, other than those controlled by 1A002, in the form of tubes and having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E201 ("use") and 1E202 ("development" and "production") for technology for items controlled by this entry. (2) Also see ECCNs 1A002, 1C010, 1C210, 9A010, and 9A110. (3) "Composite" structures "specially designed" or prepared for use in separating uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

a. An inside diameter of between 75 mm and 400 mm; *and*
b. Made with any of the "fibrous or filamentary materials" specified in 1C010.a or .b or 1C210.a or with carbon prepreg materials specified in 1C210.c.

1A225 Platinized catalysts "specially designed" or prepared for promoting the hydrogen isotope exchange reaction between hydrogen and water for the recovery of tritium from heavy water or for the production of heavy water.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A

GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E201 ("use") and 1E202 ("development" and "production") for technology for items controlled by this entry. (2) Equipment "specially designed" or prepared for the production of heavy water is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1A226 Specialized packings, which may be used in separating heavy water from ordinary water, having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E201 ("use") and 1E202 ("development" and "production") for technology for items controlled by this entry. (2) Equipment "specially designed" or prepared for the production of heavy water is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

a. Made of phosphor bronze mesh chemically treated to improve wettability; *and*

b. Designed to be used in vacuum distillation towers.

1A227 High-density (lead glass or other) radiation shielding windows, having all of the following characteristics (see List of Items Controlled), and "specially designed" frames therefor.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E201 ("use") and 1E202 ("development" and "production") for technology for items controlled by this entry. (2) Equipment "specially designed" or prepared for nuclear reactors and reprocessing facilities is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

Related Definitions: In 1A227.a, the term "cold area" means the viewing area of the window exposed to the lowest level of radiation in the design application.
Items:

a. A "cold area" greater than 0.09 m^2;

b. A density greater than 3 g/cm^3; *and*

c. A thickness of 100 mm or greater.

1A231 Target assemblies and components for the production of tritium as follows (See List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a Description of All License Exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. Target assemblies made of or containing lithium enriched in the lithium-6 isotope "specially designed" for the "production" of tritium through irradiation, including insertion in a nuclear reactor;

b. Components "specially designed" for the target assemblies specified in item a.

Technical Note to ECCN 1A231.b.: *Components "specially designed" for target assemblies for the "production" of tritium may include lithium pellets, tritium getters, and specially-coated cladding.*

1A290 Depleted uranium (any uranium containing less than 0.711% of the isotope U-235) in shipments of more than 1,000 kilograms in the form of shielding contained in X-ray units, radiographic exposure or teletherapy devices, radioactive thermoelectric generators, or packaging for the transportation of radioactive materials.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) This entry does not control depleted uranium in fabricated forms for use in munitions. See 22 CFR part 121 for depleted uranium "subject to the ITAR" (2) Depleted uranium that is not fabricated for use in munitions or fabricated into commodities solely to take advantage of its high density (e.g., aircraft, ship, or other counterweights) or in the forms listed in this entry are subject to the export licensing authority of the Nuclear Regulatory

Commission. (See 10 CFR part 110.) (3) "Natural uranium" or "depleted uranium" or thorium in the form of metal, alloy, chemical compound or concentrate and any other material containing one or more of the foregoing are subject to the export licensing authority of the Nuclear Regulatory Commission. (See 10 CFR part 110.)

Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1A607 Military dissemination "equipment" for riot control agents, military detection and protection "equipment" for toxicological agents (including chemical, biological, and riot control agents), and related commodities (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1A607.

List of Items Controlled

Related Controls: (1) Vaccines identified in ECCN 1C991 are not controlled by this ECCN. (2) See 22 CFR § 121.1 (USML), Category XIV(h), for vaccines that are subject to the ITAR. (3) Protection and detection equipment and related items identified in ECCN 1A004, 1A995, or 2B351 are not controlled by this ECCN. (4) See 22 CFR § 121.1 (USML), Category XIV(f), for dissemination, detection and protection equipment that is subject to the ITAR. (5) See ECCN 0A919 for "military commodities" located and produced outside the United States that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.

Related Definitions: N/A
Items:

a. through d. [Reserved]

e. "Equipment" "specially designed" for military use and for the dissemination of any of the riot control agents controlled in ECCN 1C607.a.

f. Protection "equipment" (including air conditioning units, protective coatings, and protective clothing):

f.1. Not controlled by USML Category XIV(f); *and*

f.2. "Specially designed" for military use and for defense against:

f.2.a. Materials specified by USML Category XIV (a) or (b); *or*

f.2.b. Riot control agents controlled in 1C607.a.

g. Decontamination "equipment":

g.1. Not controlled by USML Category XIV(f); *and*

g.2. "Specially designed" for military use and for decontamination of objects contaminated with materials controlled by USML Category XIV(a) or (b).

h. "Equipment":

h.1. Not controlled by USML Category XIV(f); *and*

h.2. "Specially designed" for military use and for the detection or identification of:

h.2.a. Materials specified by USML Category XIV(a) or (b); *or*

h.2.b. Riot control agents controlled by ECCN 1C607.a.

i. [Reserved]

j. "Equipment" "specially designed" to:

j.1. Interface with a detector, shelter, vehicle, vessel, or aircraft controlled by the USML or a "600 series" ECCN; *and*

j.2. Collect and process samples of articles controlled in USML Category XIV(a) or (b).

k. Medical countermeasures that are "specially designed" for military use (including pre- and post-treatments, antidotes, and medical diagnostics) and "specially designed" to counter chemical agents controlled by the USML Category XIV(a).

Note: *Examples of "equipment" controlled by this entry are barrier and non-barrier creams and filled autoinjectors (e.g., combopens where one injector contains 2-PAM and the other atropine) if "specially designed" to counter such agents.*

l. through w. [Reserved]

x. "Parts," "components," "accessories," and "attachments" that are "specially designed" for a commodity controlled by ECCN 1A607.e, .f, .g, .h, or .j or for a defense article controlled by USML Category XIV(f) and that are not enumerated or otherwise described elsewhere in the USML.

1A613 Armored and protective "equipment" and related commodities, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry except 1A613.y	NS Column 1
RS applies to entire entry except 1A613.y	RS Column 1
RS applies 1A613.y	China, Russia, or Venezuela (see) § 724.6(a)(7))
AT applies to entire entry	AT Column 1
UN applies to entire entry, except 1A613.y	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1A613.

List of Items Controlled

Related Controls: (1) Defense articles, such as materials made from classified information, that are controlled by USML Category X or XIII of the ITAR, and technical data (including software)

directly related thereto, are "subject to the ITAR." (2) See ECCN 0A919 for foreign-made "military commodities" that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content. (3) See ECCN 9A610.g for anti-gravity suits ("G-suits") and pressure suits capable of operating at altitudes higher than 55,000 feet above sea level.

Related Definitions: References to "NIJ Type" protection are to the National Institute of Justice Classification guide at NIJ Standard 0101.06, Ballistic Resistance of Body Armor, and NIJ Standard 0108.01, Ballistic Resistant Protective Materials.

Items:

a. Metallic or non-metallic armored plate "specially designed" for military use and not controlled by the USML.

***Note to paragraph a**: For controls on body armor plates, see ECCN 1A613.d.2 and USML Category X(a)(1).*

b. Shelters "specially designed" to:

b.1. Provide ballistic protection for military systems; *or*

b.2. Protect against nuclear, biological, or chemical contamination.

c. Military helmets (other than helmets controlled under 1A613.y.1) providing less than NIJ Type IV protection and "specially designed" helmet shells, liners, or comfort pads therefor.

***Note 1:** See ECCN 0A979 for controls on police helmets.*

***Note 2:** See USML Category X(a)(5) and (a)(6) for controls on other military helmets.*

d. Body armor and protective garments, as follows:

d.1. Soft body armor and protective garments manufactured to military standards or specifications, or to their equivalents, that provide ballistic protection equal to or less than NIJ level III (NIJ 0101.06, July 2008); *or*

***Note:** For 1A613.d.1, military standards or specifications include, at a minimum, specifications for fragmentation protection.*

d.2. Hard body armor plates that provide ballistic protection equal to NIJ level III (NIJ 0101.06, July 2008) or national equivalents.

***Note:** See ECCN 1A005 for controls on soft body armor not manufactured to military standards or specifications and hard body armor plates providing less than NIJ level III protection. For body armor providing NIJ Type IV protection or greater, see USML Category X(a)(1).*

e. Atmospheric diving suits "specially designed" for rescue operations for submarines controlled by the USML or the CCL.

f. Other personal protective "equipment" "specially designed" for military applications not controlled by the USML, not elsewhere controlled on the CCL.

g. to w. [Reserved]

x. "Parts," "components," "accessories," and "attachments" that are "specially designed" for a commodity controlled by ECCN 1A613 (except for 1A613.y) or an article enumerated in USML Category X, and not controlled elsewhere in the USML.

***Note:** Forgings, castings, and other unfinished products, such as extrusions and machined bodies, that have reached a stage in manufacturing where they are clearly identifiable by mechanical properties, material composition, geometry, or function as commodities controlled by ECCN 1A613.x are controlled by ECCN 1A613.x.*

y. Other commodities as follows:

y.1 Conventional military steel helmets.

N.B. to paragraph y.1: *For other military helmet "components" or "accessories," see the relevant ECCN in the CCL or USML Entry.*

y.2 [Reserved]

1A984 Chemical agents, including tear gas formulation containing 1 percent or less of orthochlorobenzalmalononitrile (CS), or 1 percent or less of chloroacetophenone (CN), except in individual containers with a net weight of 20 grams or less; liquid pepper except when packaged in individual containers with a net weight of 3 ounces (85.05 grams) or less; smoke bombs; non-irritant smoke flares, canisters, grenades and charges; and other pyrotechnic articles (excluding shotgun shells, unless the shotgun shells contain only chemical irritants) having dual military and commercial use, and "parts" and "components" "specially designed" therefor, n.e.s.

License Requirements

Reason for Control: CC

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CC applies to entire entry	CC Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1A985 Fingerprinting powders, dyes, and inks.

License Requirements

Reason for Control: CC

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CC applies to entire entry	CC Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See 3A981.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1A995 Protective and detection equipment not "specially designed" for military use and not controlled by ECCN 1A004 or ECCN 2B351, as follows (see List of Items Controlled), and "parts" and "components" not "specially designed" for military use and not controlled by ECCN 1A004 or ECCN 2B351 therefor.

License Requirements

Reason for Control: AT

Control(s)	*Country Chart*

	(See Supp. No. 1 to part 738)
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1A004, 2B351, and 2B352.
Related Definitions: N/A
Items:

a. Personal radiation monitoring dosimeters;

b. Equipment limited by design or function to protect against hazards specific to civil industries, such as mining, quarrying, agriculture, pharmaceuticals, medical, veterinary, environmental, waste management, or to the food industry.

Note: *This entry (1A995) does not control items for protection against chemical or biological agents that are consumer goods, packaged for retail sale or personal use, or medical products, such as latex exam gloves, latex surgical gloves, liquid disinfectant soap, disposable surgical drapes, surgical gowns, surgical foot covers, and surgical masks. Such items are classified as EAR99.*

1A999 Specific processing equipment, n.e.s., as follows (see List of Items Controlled).

License Requirements

Reason for Control: AT

Control(s)

AT applies to entire entry. A license is required for items controlled by this entry to North Korea for anti-terrorism reasons. The Commerce Country Chart is not designed to determine AT licensing requirements for this entry. See §742.19 of the EAR for additional information.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. Radiation detection, monitoring and measurement equipment, n.e.s.;

b. Radiographic detection equipment such as x-ray converters, and storage phosphor image plates.

B. TEST, INSPECTION AND "PRODUCTION EQUIPMENT"

1B001 Equipment for the production or inspection of "composite" structures or laminates controlled by 1A002 or "fibrous or filamentary materials" controlled by 1C010, as follows (see List of Items Controlled), and "specially designed" "components" and "accessories" therefor.

License Requirements

Reason for Control: NS, MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
MT applies to entire entry, except 1B001.d.4, e and f.	MT Column 1

Note: *MT applies to equipment in 1B001.d that meet or exceed the parameters of 1B101.*	
NP applies to filament winding machines described in 1B001.a that are capable of winding cylindrical rotors having a diameter between 75 mm (3 in) and 400 mm (16 in) and lengths of 600 mm (24 in) or greater; AND coordinating and programming controls and precision mandrels for these filament winding machines	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A for MT and for 1B001.a; $5000 for all other items
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCN 1D001 for software for items controlled by this entry and see ECCNs 1E001 ("development" and "production") and 1E101 ("use") for technology for items controlled by this entry. (2) Also see ECCNs 1B101 and 1B201.
Related Definitions: N/A
Items:

a. Filament winding machines, of which the motions for positioning, wrapping and winding fibers are coordinated and programmed in three or more 'primary servo positioning' axes, "specially designed" for the manufacture of "composite" structures or laminates, from "fibrous or filamentary materials";

b. 'Tape laying machines', of which the motions for positioning and laying tape are coordinated and programmed in five or more 'primary servo positioning' axes, "specially designed" for the manufacture of "composite" airframe or missile structures;

Technical Note: *For the purposes of 1B001.b, 'tape-laying machines' have the ability to lay one or more 'filament bands' limited to widths greater than 25.4 mm and less than or equal to 304.8 mm, and to cut and restart individual 'filament band' courses during the laying process.*

c. Multidirectional, multidimensional weaving machines or interlacing machines, including adapters and modification kits, "specially designed" or modified for weaving, interlacing or braiding fibers for "composite" structures;

Technical Note: *For the purposes of 1B001.c the technique of interlacing includes knitting.*

d. Equipment "specially designed" or adapted for the production of reinforcement fibers, as follows:

d.1. Equipment for converting polymeric fibers (such as polyacrylonitrile, rayon, pitch or polycarbosilane) into carbon fibers or silicon carbide fibers, including special equipment to strain the fiber during heating;

d.2. Equipment for the chemical vapor deposition of elements or compounds, on heated filamentary substrates, to manufacture silicon carbide fibers;

d.3. Equipment for the wet-spinning of refractory ceramics (such as aluminum oxide);

d.4. Equipment for converting aluminum containing precursor fibers into alumina fibers by heat treatment;

e. Equipment for producing prepregs controlled by 1C010.e by the hot melt method;

f. Non-destructive inspection equipment "specially designed" for "composite" materials, as follows:

f.1. X-ray tomography systems for three dimensional defect inspection;

f.2. Numerically controlled ultrasonic testing machines of which the motions for positioning transmitters or receivers are simultaneously coordinated and programmed in four or more axes to follow the three dimensional contours of the "part" or "component" under inspection;

g. Tow-placement machines, of which the motions for positioning and laying tows are coordinated and programmed in two or more 'primary servo positioning' axes, "specially designed" for the manufacture of "composite" airframe or missile structures.

Technical Note to 1B001.g: *For the purposes of 1B001.g, 'tow-placement machines' have the ability to place one or more 'filament bands' having widths less than or equal to 25.4 mm, and to cut and restart individual 'filament band' courses during the placement process..*

Technical Notes for 1B001:

1. *For the purpose of 1B001, 'primary servo positioning' axes control, under computer program direction, the position of the end effector (i.e., head) in space relative to the work piece at the correct orientation and direction to achieve the desired process.*

2. *For the purposes of 1B001, a 'filament band' is a single continuous width of fully or partially resin-impregnated tape, tow or fiber. Fully or partially resin-impregnated 'filament bands' include those coated with dry powder that tacks upon heating.*

1B002 Equipment for producing metal alloys, metal alloy powder or alloyed materials, "specially designed" to avoid contamination and "specially designed" for use in one of the processes specified in 1C002.c.2.

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $5000
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1B003 Tools, dies, molds or fixtures, for "superplastic forming" or "diffusion bonding" titanium, aluminum or their alloys, "specially designed" for the manufacture of any of the following (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $5000
GBS: N/A

List of Items Controlled

Related Controls: For "specially designed" production equipment of systems, sub-systems, and "parts" and "components" controlled by 9A005 to 9A009, 9A011, 9A101, 9A105 to 9A109, 9A111, and 9A116 to 9A120 usable in "missiles," see 9B115.
Related Definitions: N/A
Items:

a. Airframe or aerospace structures;

b. "Aircraft" or aerospace engines; *or*

c. "Specially designed" "parts" and "components" for structures specified by 1B003.a or for engines specified by 1B003.b.

1B018 Items on the Wassenaar Arrangement Munitions List (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
MT applies to equipment for the "production" of rocket propellants.	MT Column 1
RS applies to 1B018.a.	RS Column 2
AT applies to entire entry	AT Column 1
UN applies to entire entry.	See § 746.1(b) for UN controls.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $3000 for 1B018.a for countries WITHOUT an "X" in RS Column 2 on the Country Chart contained in Supplement No. 1 to part 738 of the EAR;
$5000 for 1B018.b.
GBS: N/A

List of Items Controlled

Related Controls: See ECCN 1B608.a, .b, and .x for items that, immediately prior to July 1, 2014, were classified under 1B018.a.
Related Definitions: N/A
Items:

a. [Reserved]

b. [Reserved]

1B101 Equipment, other than that controlled by 1B001, for the "production" of structural composites, fibers, prepregs or preforms, usable for rockets, missiles, or unmanned aerial vehicles capable of achieving a "range" equal to or greater than 300 km and their subsystems, as follows (see List of Items Controlled); and "specially designed" "parts," "components" and "accessories" therefor.

License Requirements

Reason for Control: MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
NP applies to filament winding machines described in 1B101.a that are capable of winding cylindrical rotors having a diameter between 75 mm (3 in.) and 400 mm (16 in.) and lengths of 600 mm (24 in.) or greater AND to coordinating and programming controls and precision mandrels for these filament winding machines	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A

GBS: N/A

List of Items Controlled

Related Controls: See ECCN 1D101 for software for items controlled by this entry and see ECCNs 1E001 ("development" and "production") and 1E101 ("use") for technology for items controlled by this entry. Also see 1B201.
Related Definitions: Examples of "parts," "components" and "accessories" for the machines controlled by this entry are molds, mandrels, dies, fixtures and tooling for the preform pressing, curing, casting, sintering or bonding of composite structures, laminates and manufactures thereof.
Items:

a. Filament winding machines or 'fiber/tow-placement machines,' of which the motions for positioning, wrapping and winding fibers can be coordinated and programmed in three or more axes, designed to fabricate composite structures or laminates from fibrous or filamentary materials, and coordinating and programming controls;

b. 'Tape-laying machines' of which the motions for positioning and laying tape can be coordinated and programmed in two or more axes, designed for the manufacture of composite airframe and missile structures;

Technical Notes for paragraphs a and b: *For the purposes of 1B101.a. and 1B101.b., the following definitions apply:*

1. 'Fiber/tow-placement machines' and 'tape-laying machines' are machines that perform similar processes that use computer-guided heads to lay one or several 'filament bands' onto a mold to create a part or a structure. These machines have the ability to cut and restart individual 'filament band' courses during the laying process.

2. A 'filament band' is a single continuous width of fully or partially resin-impregnated tape, tow, or fiber. Fully or partially resin-impregnated 'filament bands' include those coated with dry powder that tacks upon heating.

3. 'Fiber/tow-placement machines' have the ability to place one or more 'filament bands' having widths less than or equal to 25.4 mm. This refers to the minimum width of material the machine can place, regardless of the upper capability of the machine.

4. 'Tape-laying machines' have the ability to place one or more 'filament bands' having widths less than or equal to 304.8 mm, but cannot place 'filament bands' with a width equal to or less than 25.4 mm. This refers to the minimum width of material the machine can place, regardless of the upper capability of the machine.

c. Equipment designed or modified for the "production" of "fibrous or filamentary materials" as follows:

c.1. Equipment for converting polymeric fibers (such as polyacrylonitrile, rayon or polycarbosilane) including special provision to strain the fiber during heating;

c.2. Equipment for the vapor deposition of elements or compounds on heated filament substrates; *and*

c.3. Equipment for the wet-spinning of refractory ceramics (such as aluminum oxide);

d. Equipment designed or modified for special fiber surface treatment or for producing prepregs and preforms controlled by 9A110.

Note: *Equipment covered in 1B101.d includes but is not limited to, rollers, tension stretchers, coating equipment, cutting equipment and clicker dies.*

1B102 Metal powder "production equipment," other than that specified in 1B002, and "parts" and "components" as follows (see List of Items Controlled).

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See also 1B115.b.
Related Definitions: N/A
Items:

a. Metal powder "production equipment" usable for the "production", in a controlled environment, of spherical, spheroidal or atomized materials specified in 1C011.a., 1C011.b., 1C111.a.1., 1C111.a.2., or controlled for MT reasons in Category V of the USML.

b. "Specially designed" "parts" and "components" for "production equipment" specified in 1B002 or 1B102.a.

***Note**: 1B102 includes:*

a. Plasma generators (high frequency arc-jet) usable for obtaining sputtered or spherical metallic powders with organization of the process in an argon-water environment;

b. Electroburst equipment usable for obtaining sputtered or spherical metallic powders with organization of the process in an argon-water environment;

c. Equipment usable for the "production" of spherical aluminum powders by powdering a melt in an inert medium (e.g., nitrogen).

1B115 Equipment, other than that controlled in 1B002 or 1B102, for the "production" of propellant or propellant constituents (see List of Items Controlled), and "specially designed" "parts" and "components" therefor.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: For the control of batch mixers, continuous mixers and fluid energy mills, see 1B117, 1B118 and 1B119.
Related Definitions: N/A
Items:

a. "Production equipment" for the "production", handling or acceptance testing of liquid propellants or propellant constituents controlled by 1C011.a, 1C011.b, 1C111 or on the U.S. Munitions List;

b. "Production equipment," for the production, handling, mixing, curing, casting, pressing, machining, extruding or acceptance testing of solid propellants or propellant constituents described in 1C011.a, 1C011.b or 1C111, or on the U.S. Munitions List.

***Note**: 1B115.b does not control batch mixers, continuous mixers or fluid energy mills. For the control of batch mixers, continuous mixers and fluid energy mills see 1B117, 1B118, and 1B119.*

***Note 1**: [Reserved]*

***Note 2**: 1B115 does not control equipment for the "production," handling and acceptance testing of boron carbide.*

1B116 "Specially designed" nozzles for producing pyrolitically derived materials formed on a mold, mandrel or other substrate from precursor gases which decompose in the 1,573 K (1,300 °C) to 3,173 K (2,900 °C) temperature range at pressures of 130 Pa to 20 kPa.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1B117 Batch mixers having all of the following (see List of Items Controlled), and "specially designed" "parts" and "components" therefor.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See 1B115, 1B118, and 1B119.
Related Definitions: N/A
Items:

a. Capable of mixing under vacuum in the range from zero to 13.326 kPa;

b. Capable of controlling the temperature of the mixing chamber;

c. A total volumetric capacity of 110 liters (30 gallons) or more; *and*

d. At least one 'mixing/kneading shaft' mounted off center.

***Note to paragraph d:** In 1B117.d. the term 'mixing/kneading shaft' does not refer to deagglomerators or knife-spindles.*

1B118 Continuous mixers having all of the following (see List of Items Controlled), and

"specially designed" "parts" and "components" therefor.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See 1B115, 1B117, and 1B119.
Related Definitions: N/A
Items:

a. Capable of mixing under vacuum in the range from zero to 13.326 kPa;

b. Capable of controlling the temperature of the mixing chamber; *and*

c. Either of the following:

c.1. Two or more mixing/kneading shafts; *or*

c.2. A single rotating and oscillating shaft with kneading teeth/pins as well as kneading teeth/pins inside the casing of the mixing chamber.

1B119 Fluid energy mills usable for grinding or milling propellant or propellant constituents specified in 1C011.a, 1C011.b or 1C111, or on the U.S. Munitions List, and "specially designed" "parts" and "components" therefor.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See 1B115, 1B117, and 1B118.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1B201 Filament winding machines (other than those controlled by ECCN 1B001 or 1B101) and related equipment, as described in this ECCN (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCN 1D201 for software for items controlled by this entry and see ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. Also see ECCN 1E203 for technology for the "development" of software controlled by ECCN 1D201.
Related Definitions: N/A
Items:

a. Filament winding machines having all of the following characteristics:

a.1. Having motions for positioning, wrapping, and winding fibers coordinated and programmed in two or more axes;

a.2. "Specially designed" to fabricate composite structures or laminates from "fibrous or filamentary materials"; *and*

a.3. Capable of winding cylindrical tubes with an internal diameter between 75 mm and 650 mm and lengths of 300 mm or greater;

b. Coordinating and programming controls for filament winding machines controlled by 1B201.a;

c. Precision mandrels for filament winding machines controlled by 1B201.a.

1B225 Electrolytic cells for fluorine production with a production capacity greater than 250 g of fluorine per hour.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) See ECCN 1B999 for specific processing equipment, n.e.s.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1B226 Electromagnetic isotope separators, designed for, or equipped with, single or multiple ion sources capable of providing a total ion beam current of 50 mA or greater.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Electromagnetic isotope separators "specially designed" or prepared for use in separating uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (2) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
ECCN Controls: This entry includes separators capable of enriching stable isotopes and separators with the ion sources and collectors both in the magnetic field and those configurations in which they are external to the field.
Items:

The list of items controlled is contained in the ECCN heading.

1B228 Hydrogen cryogenic distillation columns having all of the characteristics described in this ECCN (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Equipment "specially designed" or prepared for the production of heavy water is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (2) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: (1) The term "fine grain stainless steels," for purposes of this ECCN, means fine grain austenitic stainless steels with an ASTM (or equivalent standard) grain size number of 5 or greater. (2) The term "effective length," for purposes of this ECCN, means the active height of packing material in a packed-type column, or the active height of internal contactor plates in a plate-type column.
Items:

a. Designed to operate with internal temperatures of 35 K (-238 °C) or less;
b. Designed to operate at an internal pressure of 0.5 to 5 MPa (5 to 50 atmospheres);

c. Constructed of "fine-grain stainless steels" of the 300 series with low sulphur content or equivalent cryogenic and H_2-compatible materials; *and*

d. With internal diameters of 30 cm or greater and "effective lengths" of 4 m or greater.

1B229 Water-hydrogen sulfide exchange tray columns and internal contactors, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Equipment "specially designed" or prepared for the production of heavy water is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (2) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: The"internal contactors" controlled by 1B229.b are segmented trays that have an effective assembled diameter of 1.8 m (6 ft.) or greater, are designed to facilitate countercurrent contacting, and are constructed of stainless steels with a carbon content of 0.03% or less. These may be sieve trays, valve trays, bubble cap trays, or turbogrid trays.
Items:

a. Water-hydrogen sulfide exchange tray columns, having all of the following characteristics:

a.1. Can operate at pressures of 2 MPa or greater;

a.2. Constructed of carbon steel having an austenitic ASTM (or equivalent standard) grain size number of 5 or greater; *and*

a.3. With a diameter of 1.8 m (6 ft.) or greater;

b. "Internal contactors" for the water-hydrogen sulfide exchange tray columns controlled by 1B229.a.

1B230 Pumps capable of circulating solutions of concentrated or dilute potassium amide catalyst in liquid ammonia (KNH_2/NH_3), having all of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Equipment "specially designed" or prepared for the production of heavy water is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (2) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. Airtight (i.e., hermetically sealed);

b. A capacity greater than 8.5 m^3/h; *and*

c. Either of the following characteristics:

c.1. For concentrated potassium amide solutions (1% or greater), an operating pressure of 1.5 to 60 MPa (15-600 atmospheres); *or*

c.2. For dilute potassium amide solutions (less than 1%), an operating pressure of 20 to 60 MPa (200-600 atmospheres).

1B231 Tritium facilities or plants, and equipment therefor, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Tritium, tritium compounds, and mixtures containing tritium are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (2) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. Facilities or plant for the production, recovery, extraction, concentration, or handling of tritium;

b. Equipment for tritium facilities or plant, as follows:

b.1. Hydrogen or helium refrigeration units capable of cooling to 23 K (-250 °C) or less, with heat removal capacity greater than 150 watts; *or*

b.2. Hydrogen isotope storage and purification systems using metal hydrides as the storage, or purification medium.

1B232 Turboexpanders or turboexpander-compressor sets having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Equipment "specially designed" or prepared for the production of heavy water is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (2) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. Designed for operation with an outlet temperature of 35 K (-238 °C) or less; *and*

b. Designed for a throughput of hydrogen gas of 1,000 kg/h or greater.

1B233 Lithium isotope separation facilities or plants, and systems and equipment therefor (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*

NP applies to 1B233.b	NP Column 1
AT applies to 1B233.b	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCN 1E001 ("development" and "production") and ECCN 1E201 ("use") for technology for items described in this entry. (2) Facilities and plants described in 1B233.a are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (3) Certain lithium isotope separation equipment and components for the plasma separation process (PSP) that are described in 1B233.b through .d are also directly applicable to uranium isotope separation and are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

a. Facilities or plants for the separation of lithium isotopes;

b. Equipment for the separation of lithium isotopes based on the lithium-mercury amalgam process, as follows:

b.1. Packed liquid-liquid exchange columns "specially designed" for lithium amalgams;

b.2. Mercury and/or lithium amalgam pumps;

b.3. Lithium amalgam electrolysis cells;

b.4. Evaporators for concentrated lithium hydroxide solution.

c. Ion exchange systems "specially designed" for lithium isotope separation, and "specially designed" component parts therefor;

d. Chemical exchange systems (employing crown ethers, cryptands, or lariat ethers) "specially designed" for lithium isotope separation, and "specially designed" component parts therefor.

1B234 High explosive containment vessels, chambers, containers, and other similar containment devices, not enumerated in ECCN 1B608 or in USML Category IV or V of the ITAR, designed for the testing of high explosives or explosive devices and having both of the characteristics described in this ECCN (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Devices "specially designed" for the handling, control, activation, monitoring, detection, protection, discharge, or detonation of the articles enumerated in USML Category IV(a) and (b) are controlled by USML Category IV(c) of the ITAR (see 22 CFR parts 120 through 130). (2) See USML Category V of the ITAR (22 CFR parts 120 through 130) for devices identified therein that are "specially designed" to fully contain explosives

enumerated in USML Category V. (3) Also see ECCN 1B608 for ''equipment'' ''specially designed'' for the ''development,'' ''production,'' repair, overhaul, or refurbishing of items controlled by ECCN 1C608 or USML Category V and not elsewhere specified on the USML.

Related Definitions: N/A
Items:

a. Designed to fully contain an explosion equivalent to 2 kg of TNT or greater; *and*

b. Having design elements or features enabling real time or delayed transfer of diagnostic or measurement information.

1B607 Military test, inspection, and production "equipment" and related commodities "specially designed" for the "development," "production," repair, overhaul, or refurbishing of commodities identified in ECCN 1A607 or 1C607, or defense articles enumerated or otherwise described in USML Category XIV (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1B607.

List of Items Controlled

Related Controls: (1) See ECCN 2B350 for controls on certain incinerators. (2) See ECCN 0A919 for "military commodities" located and produced outside the United States that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.
Related Definitions: N/A
Items:

a. "Equipment" "specially designed" for the destruction of the chemical agents controlled by USML Category XIV(a).

Note to 1B607.a: *ECCN 1B607.a includes controls over facilities "specially designed" for destruction operations. This paragraph .a does not control incinerators and "specially designed" handling facilities or "specially designed" waste supply systems therefor.*

b. Test facilities and "equipment" "specially designed" for military certification, qualification, or testing of commodities controlled by ECCN 1A607.e, .f, .g, .h, or .j or by USML Category XIV(f), except for XIV(f)(1).

c. Tooling and "equipment" "specially designed" for the "development," "production," repair, overhaul, or refurbishing of commodities controlled by ECCN 1A607.e, .f .g, .h, or .j or USML Category XIV(f).

d. through w. [Reserved]

x. "Parts," "components," "accessories," and "attachments" that are "specially designed" for a commodity controlled by ECCN 1B607.b or .c, or for a defense article controlled by USML Category XIV(f), and that are not enumerated or otherwise described elsewhere in the USML.

1B608 Test, inspection, and production ''equipment'' and related commodities ''specially designed'' for the ''development,'' ''production,'' repair, overhaul, or refurbishing of commodities enumerated in ECCN 1C608 or USML Category V (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, MT, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
MT applies to equipment "specially designed" for MT-controlled commodities in ECCN 1C608 or MT articles in USML Category V	MT Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1B608.

List of Items Controlled

Related Controls: (1) Defense articles that are enumerated in USML Category V, and technical data (including software) directly related thereto, are "subject to the ITAR." (2) See ECCN 0A919 for foreign-made "military commodities" that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content. (3) See ECCN 1B115 for controls on "production equipment," not controlled by this ECCN 1B608, for propellants or propellant constituents described in ECCN 1C011.a, 1C011.b, or 1C111 or in USML Category V.

Related Definitions: N/A
Items:

a. "Equipment" "specially designed" for the "development," "production," repair, overhaul, or refurbishing of items controlled by ECCN 1C608 or USML Category V and not elsewhere specified on the USML.

Note: *ECCN 1B608.a. includes: (1) continuous nitrators; (2) dehydration presses; (3) cutting machines for the sizing of extruded propellants; (4) sweetie barrels (tumblers) 6 feet or more in diameter and having over 500 pounds product capacity; (5) convection current converters for the conversion of materials listed in USML Category V(c)(2); and (6) extrusion presses for the extrusion of small arms, cannon and rocket propellants.*

b. Complete installations "specially designed" for the "development," "production," repair, overhaul, or refurbishing of items controlled by ECCN 1C608 or USML Category V and not elsewhere specified on the USML.

c. Environmental test facilities "specially designed" for the certification, qualification, or testing of items controlled by ECCN 1C608 or USML Category V.

d. through w. [Reserved]

x. "Parts," "components," "accessories" and "attachments" that are "specially designed" for a commodity subject to control in this ECCN or a defense article in USML Category V and not elsewhere specified on the USML.

1B613 Test, inspection, and "production" "equipment" and related commodities "specially designed" for the "development," "production," repair, overhaul, or

refurbishing of commodities controlled by ECCN 1A613 or USML Category X, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1B613.

List of Items Controlled

Related Controls: See ECCN 0A919 for foreign-made "military commodities" that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.
Related Definitions: N/A
Items:

a. Test, inspection, and "production" "equipment," not controlled by USML Category X(c), that is "specially designed" for the "development," "production," repair, overhaul, or refurbishing of commodities controlled by ECCN 1A613 or USML Category X.

b. Plasma pressure compaction (P2C) "equipment" "specially designed" for the "production" of ceramic or composite body armor plates controlled by ECCN 1A613 or USML Category X.

1B999 Specific processing equipment, n.e.s., as follows (see List of Items Controlled).

License Requirements

Reason for Control: AT, RS

Control(s)

AT applies to entire entry. A license is required for items controlled by this entry to North Korea for anti-terrorism reasons. The Commerce Country Chart is not designed to determine AT licensing requirements for this entry. See §742.19 of the EAR for additional information

RS applies to entire entry. A license is required for items controlled by this entry for export or reexport to Iraq or transfer within Iraq for regional stability reasons. The Commerce Country Chart is not designed to determine RS license requirements for this entry. See §§742.6 and 746.3 of the EAR for additional information.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See also 1B001, 1B101, 1B201, 1B225 and 1D999
Related Definitions: N/A
Items:

a. Electrolytic cells for fluorine production, n.e.s.;

b. Particle accelerators;

c. Industrial process control hardware/systems designed for power industries, n.e.s.;

d. Freon and chilled water cooling systems capable of continuous cooling duties of 100,000 BTU/hr (29.3 kW) or greater;

e. Equipment for the production of structural composites, fibers, prepregs and preforms, n.e.s.

C. "MATERIALS"

***Technical Note**:*

Metals and alloys: Unless provision to the contrary is made, the words "metals" and "alloys" in 1C001 to 1C011 cover crude and semi-fabricated forms, as follows:

Crude forms: Anodes, balls, bars (including notched bars and wire bars), billets, blocks, blooms, brickets, cakes, cathodes, crystals, cubes, dice, grains, granules, ingots, lumps, pellets, pigs, powder, rondelles, shot, slabs, slugs, sponge, sticks;

Semi-fabricated forms (whether or not coated, plated, drilled or punched):

a. Wrought or worked materials fabricated by rolling, drawing, extruding, forging, impact extruding, pressing, graining, atomizing, and grinding, i.e.: angles, channels, circles, discs, dust, flakes, foils and leaf, forging, plate, powder, pressings and stampings, ribbons, rings, rods (including bare welding rods, wire rods, and rolled wire), sections, shapes, sheets, strip, pipe and tubes (including tube rounds, squares, and hollows), drawn or extruded wire;

b. Cast material produced by casting in sand, die, metal, plaster or other types of molds, including high pressure castings, sintered forms, and forms made by powder metallurgy.

The object of the control should not be defeated by the export of non-listed forms alleged to be finished products but representing in reality crude forms or semi-fabricated forms.

1C001 Materials "specially designed" for absorbing electromagnetic radiation, or intrinsically conductive polymers, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

Special Conditions for STA

STA: License Exception STA may not be used to ship any item in this entry to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls: See also 1C101
Related Definitions: N/A
Items:

a. Materials for absorbing frequencies exceeding 2 x 10^8 Hz but less than 3 x 10^{12} Hz.

***Note 1:** 1C001.a does not control:*

a. Hair type absorbers, constructed of natural or synthetic fibers, with non-magnetic loading to provide absorption;

b. Absorbers having no magnetic loss and whose incident surface is non-planar in shape, including pyramids, cones, wedges and convoluted surfaces;

c. Planar absorbers, having all of the following:

1. Made from any of the following:

a. Plastic foam materials (flexible or non-flexible) with carbon-loading, or organic materials, including binders, providing more than 5% echo compared with metal over a bandwidth exceeding ± 15% of the center frequency of the incident energy, and not capable of withstanding temperatures exceeding 450 K (177 °C); or

b. Ceramic materials providing more than 20% echo compared with metal over a bandwidth exceeding ± 15% of the center frequency of the incident energy, and not capable of withstanding temperatures exceeding 800 K (527 °C);

Technical Note: *Absorption test samples for 1C001.a. Note 1.c.1 should be a square at least 5 wavelengths of the center frequency on a side and positioned in the far field of the radiating element.*

2. Tensile strength less than 7 x 10^6 N/m^2; and

3. Compressive strength less than 14 x 10^6 N/m^2;

d. Planar absorbers made of sintered ferrite, having all of the following:

1. A specific gravity exceeding 4.4; and

2. A maximum operating temperature of 548 K (275 °C);

e. Planar absorbers having no magnetic loss and fabricated from 'open-cell foams' plastic material with a density of 0.15 grams/cm^3 or less.

***Technical Note**: 'Open-cell foams' are flexible and porous materials, having an inner structure open to the atmosphere. 'Open-cell foams' are also known as reticulated foams.*

Note 2: *Nothing in Note 1 releases magnetic materials to provide absorption when contained in paint.*

b. Materials not transparent to visible light and specially designed for absorbing near-infrared radiation having a wavelength exceeding 810 nm but less than 2,000 nm (frequencies exceeding 150 THz but less than 370 THz);

***Note**: 1C001.b does not apply to materials, "specially designed" or formulated for any of the following applications:*

a. "Laser" marking of polymers; or

b. "Laser" welding of polymers.

c. Intrinsically conductive polymeric materials with a 'bulk electrical conductivity' exceeding 10,000 S/m (Siemens per meter) or a 'sheet (surface) resistivity' of less than 100 ohms/square, based on any of the following polymers:

c.1. Polyaniline;

c.2. Polypyrrole;

c.3. Polythiophene;

c.4. Poly phenylene-vinylene; *or*

c.5. Poly thienylene-vinylene.

***Note**: 1C001.c does not apply to materials in a liquid form.*

Technical Note: *'Bulk electrical conductivity' and 'sheet (surface) resistivity' should be determined using ASTM D-257 or national equivalents.*

1C002 Metal alloys, metal alloy powder and alloyed materials, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
NP applies to 1C002.b.3 or b.4 if they exceed the parameters stated in 1C202	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $3000; N/A for NP
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCN 1C202. (3) Aluminum alloys and titanium alloys in physical forms and finished products "specially designed" or prepared for use in separating uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definition: N/A
Items:

Note: *1C002 does not control metal alloys, metal alloy powder and alloyed materials, specially formulated for coating purposes.*

Technical Note 1: *The metal alloys in 1C002 are those containing a higher percentage by weight of the stated metal than of any other element.*

Technical Note 2: *'Stress-rupture life' should be measured in accordance with ASTM standard E-139 or national equivalents.*

Technical Note 3: *'Low cycle fatigue life' should be measured in accordance with ASTM Standard E-606 'Recommended Practice for Constant-Amplitude Low-Cycle Fatigue Testing' or national equivalents. Testing should be axial with an average stress ratio equal to 1 and a stress-concentration factor (K_t) equal to 1. The average stress is defined as maximum stress minus minimum stress divided by maximum stress.*

a. Aluminides, as follows:

a.1. Nickel aluminides containing a minimum of 15% by weight aluminum, a maximum of 38% by weight aluminum and at least one additional alloying element;

a.2. Titanium aluminides containing 10% by weight or more aluminum and at least one additional alloying element;

b. Metal alloys, as follows, made from the powder or particulate material controlled by 1C002.c:

b.1. Nickel alloys having any of the following:

b.1.a. A 'stress-rupture life' of 10,000 hours or longer at 923 K (650 °C) at a stress of 676 MPa; *or*

b.1.b. A 'low cycle fatigue life' of 10,000 cycles or more at 823 K (550 °C) at a maximum stress of 1,095 MPa;

b.2. Niobium alloys having any of the following:

b.2.a. A 'stress-rupture life' of 10,000 hours or longer at 1,073 K (800 °C) at a stress of 400 MPa; *or*

b.2.b. A 'low cycle fatigue life' of 10,000 cycles or more at 973 K (700 °C) at a maximum stress of 700 MPa;

b.3. Titanium alloys having any of the following:

b.3.a. A 'stress-rupture life' of 10,000 hours or longer at 723 K (450 °C) at a stress of 200 MPa; *or*

b.3.b. A 'low cycle fatigue life' of 10,000 cycles or more at 723 K (450 °C) at a maximum stress of 400 MPa;

b.4 Aluminum alloys having any of the following:

b.4.a. A tensile strength of 240 MPa or more at 473 K (200 °C); *or*

b.4.b. A tensile strength of 415 MPa or more at 298 K (25 °C);

b.5. Magnesium alloys having all the following:

b.5.a. A tensile strength of 345 MPa or more; and

b.5.b. A corrosion rate of less than 1 mm/year in 3% sodium chloride aqueous solution measured in accordance with ASTM standard G-31 or national equivalents;

c. Metal alloy powder or particulate material, having all of the following:

c.1. Made from any of the following composition systems:

Technical Note: *X in the following equals one or more alloying elements.*

c.1.a. Nickel alloys (Ni-Al-X, Ni-X-Al) qualified for turbine engine "parts" or "components," i.e. with less than 3 non-metallic particles (introduced during the manufacturing process) larger than 100 μm in 10^9 alloy particles;

c.1.b. Niobium alloys (Nb-Al-X or Nb-X-Al, Nb-Si-X or Nb-X-Si, Nb-Ti-X or Nb-X-Ti);

c.1.c. Titanium alloys (Ti-Al-X or Ti-X-Al);

c.1.d. Aluminum alloys (Al-Mg-X or Al-X-Mg, Al-Zn-X or Al-X-Zn, Al-Fe-X or Al-X-Fe); *or*

c.1.e. Magnesium alloys (Mg-Al-X or Mg-X-Al);

c.2. Made in a controlled environment by any of the following processes:

c.2.a. 'Vacuum atomization';

c.2.b. 'Gas atomization';

c.2.c. 'Rotary atomization';

c.2.d. 'Splat quenching';

c.2.e. 'Melt spinning' and 'comminution';

c.2.f. 'Melt extraction' and 'comminution';

c.2.g. 'Mechanical alloying'; *or*

c.2.h. 'Plasma atomization'; *and*

c.3. Capable of forming materials controlled by 1C002.a or 1C002.b;

d. Alloyed materials, having all the following:

d.1. Made from any of the composition systems specified by 1C002.c.1;

d.2. In the form of uncomminuted flakes, ribbons or thin rods; *and*

d.3. Produced in a controlled environment by any of the following:

d.3.a. 'Splat quenching';

d.3.b. 'Melt spinning'; *or*

d.3.c. 'Melt extraction'.

Technical Notes:

1. 'Vacuum atomization' is a process to reduce a molten stream of metal to droplets of a diameter of 500 µm or less by the rapid evolution of a dissolved gas upon exposure to a vacuum.

2. 'Gas atomization' is a process to reduce a molten stream of metal alloy to droplets of 500 µm diameter or less by a high pressure gas stream.

3. 'Rotary atomization' is a process to reduce a stream or pool of molten metal to droplets of a diameter of 500 µm or less by centrifugal force.

4. 'Splat quenching' is a process to 'solidify rapidly' a molten metal stream impinging upon a chilled block, forming a flake-like product.

5. 'Melt spinning' is a process to 'solidify rapidly' a molten metal stream impinging upon a rotating chilled block, forming a flake, ribbon or rod-like product.

6. 'Comminution' is a process to reduce a material to particles by crushing or grinding.

7. 'Melt extraction' is a process to 'solidify rapidly' and extract a ribbon-like alloy product by the insertion of a short segment of a rotating chilled block into a bath of a molten metal alloy.

8. 'Mechanical alloying' is an alloying process resulting from the bonding, fracturing and rebonding of elemental and master alloy powders by mechanical impact. Non-metallic particles may be incorporated in the alloy by addition of the appropriate powders.

9. 'Plasma atomization' is a process to reduce a molten stream or solid metal to droplets of 500 µm diameter or less, using plasma torches in an inert gas environment.

10. 'Solidify rapidly' is a process involving the solidification of molten material at cooling rates exceeding 1000 K/sec.

1C003 Magnetic metals, of all types and of whatever form, having any of the following (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $3000
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. Initial relative permeability of 120,000 or more and a thickness of 0.05 mm or less;

Technical Note: *Measurement of initial relative permeability must be performed on fully annealed materials.*

b. Magnetostrictive alloys having any of the following:

b.1. A saturation magnetostriction of more than 5×10^{-4}; *or*

b.2. A magnetomechanical coupling factor (k) of more than 0.8; *or*

c. Amorphous or 'nanocrystalline' alloy strips, having all of the following:

c.1. A composition having a minimum of 75% by weight of iron, cobalt or nickel;

c.2. A saturation magnetic induction (B_s) of 1.6 T or more; *and*

c.3. Any of the following:

c.3.a. A strip thickness of 0.02 mm or less; *or*

c.3.b. An electrical resistivity of 2×10^{-4} ohm cm or more.

Technical Note: *'Nanocrystalline' materials in 1C003.c are those materials having a crystal grain size of 50 nm or less, as determined by X-ray diffraction.*

1C004 Uranium titanium alloys or tungsten alloys with a "matrix" based on iron, nickel or copper, having all of the following (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $3000
GBS: N/A

List of Items Controlled

Related Controls: See also 1C117 and 1C226.
Related Definitions: N/A
Items:

a. A density exceeding 17.5 g/cm^3;

b. An elastic limit exceeding 880 MPa;

c. An ultimate tensile strength exceeding 1,270 MPa; *and*

d. An elongation exceeding 8%.

1C005 "Superconductive" "composite" conductors in lengths exceeding 100 m or with a mass exceeding 100 g, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. "Superconductive" "composite" conductors containing one or more niobium-titanium 'filaments', having all of the following:

a.1. Embedded in a "matrix" other than a copper or copper-based mixed "matrix"; *and*

a.2. Having a cross-section area less than 0.28 x 10^{-4} mm^2 (6 µm in diameter for circular 'filaments');

b. "Superconductive" "composite" conductors consisting of one or more "superconductive" 'filaments' other than niobium-titanium, having all of the following:

b.1. A "critical temperature" at zero magnetic induction exceeding 9.85 K (-263.31 ºC); and

b.2. Remaining in the "superconductive" state at a temperature of 4.2 K (-268.96ºC) when exposed to a magnetic field oriented in any direction perpendicular to the longitudinal axis of conductor and corresponding to a magnetic induction of 12 T with critical current density exceeding 1750 A/mm^2 on overall cross-section of the conductor.

c. "Superconductive" "composite" conductors consisting of one or more "superconductive" 'filaments' which remain "superconductive" above 115 K (-158.16ºC).

Technical Note: *For the purpose of 1C005, 'filaments' may be in wire, cylinder, film, tape or ribbon form.*

1C006 Fluids and lubricating materials, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $3000
GBS: Yes for 1C006.d

List of Items Controlled

Related Controls: See also 1C996.
Related Definitions: N/A
Items:

a. [Reserved]

b. Lubricating materials containing, as their principal ingredients, any of the following:

b.1. Phenylene or alkylphenylene ethers or thio-ethers, or their mixtures, containing more than two ether or thio-ether functions or mixtures thereof; *or*

b.2. Fluorinated silicone fluids with a kinematic viscosity of less than 5,000 mm^2/s (5,000 centistokes) measured at 298 K (25 °C);

c. Damping or flotation fluids having all of the following:

c.1. Purity exceeding 99.8%;

c.2. Containing less than 25 particles of 200 µm or larger in size per 100 ml; *and*

c.3. Made from at least 85% of any of the following:

c.3.a.Dibromotetrafluoroethane (CAS 25497- 30-7, 124-73-2, 27336-23- 8);

c.3.b.Polychlorotrifluoroethylene (oily and waxy modifications only); *or*

c.3.c.Polybromotrifluoroethylene;

d. Fluorocarbon electronic cooling fluids having all of the following:

d.1. Containing 85% by weight or more of any of the following, or mixtures thereof:

d.1.a. Monomeric forms of perfluoropolyalkylether- triazines or perfluoroaliphatic-ethers;

d.1.b. Perfluoroalkylamines;

d.1.c. Perfluorocycloalkanes; *or*

d.1.d. Perfluoroalkanes;

d.2. Density at 298 K (25 °C) of 1.5 g/ml or more;

d.3. In a liquid state at 273 K (0 °C); *and*

d.4. Containing 60% or more by weight of fluorine.

Note: *1C006.d does not apply to materials specified and packaged as medical products.*

1C007 Ceramic powders, ceramic-"matrix" "composite" materials and 'precursor materials,' as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
MT applies to items in 1C007.c when the dielectric constant is less than 6 at any frequency from 100 MHz to 100 GHz for use in "missile" radomes	MT Column 1
AT applies to entire entry	AT Column 1

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $5,000, except N/A for MT and for 1C007.e

GBS: N/A

Special Conditions for STA

STA: License Exception STA may not be used to ship any item in 1C007.c entry to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls: See also 1C107
Related Definitions: N/A
Items:

a. Ceramic powders of titanium diboride (TiB_2) (CAS 12045-63-5) having total metallic impurities, excluding intentional additions, of less than 5,000 ppm, an average particle size equal to or less than 5 µm and no more than 10% of the particles larger than 10 µm;

b. [Reserved]

c. Ceramic-"matrix" "composite" materials as follows:

c.1. Ceramic-ceramic "composite" materials with a glass or oxide-"matrix" and reinforced with any of the following:

c.1.a. Continuous fibers made from any of the following materials:

c.1.a.1. Al_2O_3 (CAS 1344-28-1); *or*

c.1.a.2. Si-C-N; *or*

Note*: 1C007.c.1.a does not apply to "composites" containing fibers with a tensile strength of less than 700 MPa at 1,273 K (1,000ºC) or tensile creep resistance of more than 1% creep strain at 100 MPa load and 1,273 K (1,000ºC) for 100 hours.*

c.1.b. Fibers being all of the following:

c.1.b.1. Made from any of the following materials:

c.1.b.1.a. Si-N;

c.1.b.1.b. Si-C;

c.1.b.1.c. Si-Al-O-N; *or*

c.1.b.1.d. Si-O-N; *and*

c.1.b.2. Having a "specific tensile strength" exceeding 12.7 x 10^3 m;

c.2. Ceramic-"matrix" "composite" materials with a "matrix" formed of carbides or nitrides of silicon, zirconium or boron;

N.B.: *For items previously specified by 1C007.c see 1C007.c.1.b.*

d. [Reserved]

N.B.: *For items previously specified by 1C007.d see 1C007.c.2.*

e. 'Precursor materials' "specially designed" for the "production" of materials controlled by 1C007.c, as follows:

e.1. Polydiorganosilanes;

e.2. Polysilazanes;

e.3. Polycarbosilazanes;

Technical Note: *For the purposes of 1C007, 'precursor materials' are special purpose polymeric or metallo-organic materials used for the "production" of silicon carbide, silicon nitride, or ceramics with silicon, carbon and nitrogen.*

f. [Reserved]

N.B.*: For items previously specified by 1C007.f see 1C007.c.1.a.*

1C008 Non-fluorinated polymeric substances as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $200
GBS: N/A

List of Items Controlled

Related Controls: See also 1A003.
Related Definitions: N/A
Items:

a. Imides as follows:

a.1. Bismaleimides;

a.2. Aromatic polyamide-imides (PAI) having a 'glass transition temperature (Tg)' exceeding 563 K (290ºC);

a.3. Aromatic polyimides having a 'glass transition temperature (Tg)' exceeding 505 K (232°C);

a.4. Aromatic polyetherimides having a 'glass transition temperature (Tg)' exceeding 563 K (290º C);

Note*: 1C008.a controls the substances in liquid or solid "fusible" form, including resin, powder, pellet, film, sheet, tape, or ribbon.*

N.B.: *For non-"fusible" aromatic polyimides in film, sheet, tape, or ribbon form, see ECCN 1A003.*

b. [RESERVED]

c. [RESERVED]

d. Polyarylene ketones;

e. Polyarylene sulfides, where the arylene group is biphenylene, triphenylene or combinations thereof;

f. Polybiphenylenethersulphone having a 'glass transition temperature (Tg)' exceeding 563 K (290° C).

Technical Notes:

1. *The 'glass transition temperature (Tg)' for 1C008.a.2 thermoplastic materials, 1C008.a.4 materials and 1C008.f materials is determined using the method described in ISO 11357-2 (1999) or national equivalents.*

2. *The 'glass transition temperature (Tg)' for 1C008.a.2 thermosetting materials and 1C008.a.3 materials is determined using the 3-point bend method described in ASTM D 7028-07 or equivalent national standard. The test is to be performed using a dry test specimen which has attained a minimum of 90% degree of cure as specified by ASTM E 2160-04 or equivalent national standard, and was cured using the combination of standard- and post-cure processes that yield the highest Tg.*

1C009 Unprocessed fluorinated compounds as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $5000
GBS: N/A

List of Items Controlled

Related Controls: See also 1A001.
Related Definitions: N/A
Items:

a. [Reserved]

b. Fluorinated polyimides containing 10% by weight or more of combined fluorine;

c. Fluorinated phosphazene elastomers containing 30% by weight or more of combined fluorine.

1C010 "Fibrous or filamentary materials" as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
NP applies to 1C010.a (aramid "fibrous or filamentary materials", b (carbon "fibrous and filamentary materials"), and e.1 for "fibrous and filamentary materials" that meet or exceed the control criteria of ECCN 1C210	NP Column 1
AT applies to entire entry	AT Column 1

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500, N/A for NP
GBS: N/A

Special Conditions for STA

STA: License Exception STA may not be used to ship any item in 1C010.c to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCNs 1C210 and 1C990. (3) See also 9C110 for material not controlled by 1C010.e, as defined by notes 1 or 2.

Related Definitions: 1.) "Specific modulus": Young's modulus in pascals, equivalent to N/m^2 divided by specific weight in N/m^3, measured at a temperature of (296±2) K ((23±2) °C) and a relative humidity of (50±5)%. 2.) "Specific tensile strength": ultimate tensile strength in pascals, equivalent to N/m^2 divided by specific weight in N/m^3, measured at a temperature of (296±2) K ((23±2) °C) and a relative humidity of (50±5)%.
Items:

Technical Notes:

1. *For the purpose of calculating "specific tensile strength", "specific modulus" or specific weight of "fibrous or filamentary materials" in 1C010.a, 1C010.b or 1C010.c, the tensile strength and modulus should be determined by using Method A described in ISO 10618 (2004) or national equivalents.*

2. *Assessing the "specific tensile strength", "specific modulus" or specific weight of non-unidirectional "fibrous or filamentary materials" (e.g., fabrics, random mats or braids) in 1C010 is to be based on the mechanical properties of the constituent unidirectional monofilaments (e.g., monofilaments, yarns, rovings or tows) prior to processing into the non-unidirectional "fibrous or filamentary materials".*

a. Organic "fibrous or filamentary materials", having all of the following:

a.1. "Specific modulus" exceeding 12.7×10^6 m; *and*

a.2. "Specific tensile strength" exceeding 23.5×10^4 m;

Note*: 1C010.a does not control polyethylene.*

b. Carbon "fibrous or filamentary materials", having all of the following:

b.1. "Specific modulus" exceeding 14.65×10^6 m; *and*

b.2. "Specific tensile strength" exceeding 26.82×10^4 m;

Note*: 1C010.b does not control:*

a. "Fibrous or filamentary materials", for the repair of "civil aircraft" structures or laminates, having all of the following:

1. *An area not exceeding 1 m^2;*
2. *A length not exceeding 2.5 m; and*
3. *A width exceeding 15 mm.*

b. Mechanically chopped, milled or cut carbon "fibrous or filamentary materials" 25.0 mm or less in length.

c. Inorganic "fibrous or filamentary materials", having all of the following:

c.1. "Specific modulus" exceeding 2.54×10^6 m; and

c.2. Melting, softening, decomposition or sublimation point exceeding 1,922 K (1,649 ºC) in an inert environment;

Note: *1C010.c does not control:*

a. Discontinuous, multiphase, polycrystalline alumina fibers in chopped fiber or random mat form, containing 3% by weight or more silica, with a "specific modulus" of less than 10 x 10^6 m;

b. Molybdenum and molybdenum alloy fibers;

c. Boron fibers;

d. Discontinuous ceramic fibers with a melting, softening, decomposition or sublimation point lower than 2,043 K (1,770ºC) in an inert environment.

d. "Fibrous or filamentary materials", having any of the following:

d.1. Composed of any of the following:

d.1.a. Polyetherimides controlled by 1C008.a; *or*

d.1.b. Materials controlled by 1C008.b to 1C008.f; *or*

d.2. Composed of materials controlled by 1C010.d.1.a or 1C010.d.1.b and 'commingled' with other fibers controlled by 1C010.a, 1C010.b or 1C010.c;

Technical Note*: 'Commingled' is filament to filament blending of thermoplastic fibers and reinforcement fibers in order to produce a fiber reinforcement "matrix" mix in total fiber form.*

e. Fully or partially resin impregnated or pitch impregnated "fibrous or filamentary materials" (prepregs), metal or carbon coated "fibrous or filamentary materials" (preforms) or 'carbon fiber preforms', having all of the following:

e.1. Having any of the following:

e.1.a. Inorganic "fibrous or filamentary materials" controlled by 1C010.c; *or*

e.1.b. Organic or carbon "fibrous or filamentary materials", having all of the following:

e.1.b.1. "Specific modulus" exceeding 10.15 x 10^6 m; *and*

e.1.b.2 "Specific tensile strength" exceeding 17.7 x 10^4m; *and*

e.2. Having any of the following:

e.2.a. Resin or pitch, controlled by 1C008 or 1C009.b;

e.2.b. 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' equal to or exceeding 453 K (180ºC) and having a phenolic resin; *or*

e.2.c. 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' equal to or exceeding 505 K (232ºC) and having a resin or pitch, not specified by 1C008 or 1C009.b, and not being a phenolic resin;

Note 1*: Metal or carbon coated "fibrous or filamentary materials" (preforms) or 'carbon fiber preforms', not impregnated with resin or pitch, are specified by "fibrous or filamentary materials" in 1C010.a, 1C010.b or 1C010.c.*

Note 2: *1C010.e does not apply to:*

a. Epoxy resin "matrix" impregnated carbon "fibrous or filamentary materials" (prepregs) for the repair of "civil aircraft" structures or laminates, having all of the following:

1. *An area not exceeding 1 m^2;*
2. *A length not exceeding 2.5 m; and*
3. *A width exceeding 15 mm;*

b. Fully or partially resin-impregnated or pitch-impregnated mechanically chopped, milled or cut carbon "fibrous or filamentary materials" 25.0 mm or less in length when using a resin or pitch other than those specified by 1C008 or 1C009.b.

Technical Notes:

1. *'Carbon fiber preforms' are an ordered arrangement of uncoated or coated fibers intended to constitute a framework of a part before the "matrix" is introduced to form a "composite".*

2. *The 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' for materials controlled by 1C010.e is determined using the method described in ASTM D 7028 -07, or equivalent national standard, on a dry test specimen. In the case of thermoset materials, degree of cure of a dry test specimen shall be a minimum of 90% as defined by ASTM E 2160 04 or equivalent national standard.*

1C011 Metals and compounds, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
MT applies to 1C011.a and .b for items that meet or exceed the parameters in 1C111.	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See also ECCNs 1C111 and 1C608. (2) All of the following are "subject to the ITAR" (see 22 CFR parts 120 through 130): a) Materials controlled by 1C011.a, and metal fuels in particle form, whether spherical, atomized, spheroidal, flaked or ground, manufactured from material consisting of 99 percent or more of items controlled by 1C011.b; and b) Metal powders mixed with other substances to form a mixture formulated for military purposes.
Related Definitions: N/A
Items:

a. Metals in particle sizes of less than 60 µm whether spherical, atomized, spheroidal, flaked or ground, manufactured from material consisting of 99% or more of zirconium, magnesium and alloys thereof;

Technical Note: *The natural content of hafnium in the zirconium (typically 2% to 7%) is counted with the zirconium.*

Note: *The metals or alloys specified by 1C011.a also refer to metals or alloys encapsulated in aluminum, magnesium, zirconium or beryllium.*

b. Boron or boron alloys, with a particle size of 60 µm or less, as follows:

b.1. Boron with a purity of 85% by weight or more;

b.2. Boron alloys with a boron content of 85% by weight or more;

Note: *The metals or alloys specified by 1C011.b also refer to metals or alloys encapsulated in aluminum, magnesium, zirconium or beryllium.*

c. Guanidine nitrate (CAS 506-93-4);

d. Nitroguanidine (NQ) (CAS 556-88-7).

1C018 Commercial charges and devices containing energetic materials on the Wassenaar Arrangement Munitions List and certain chemicals.

No items currently are in this ECCN. (1) See ECCN 1C608.b. through .m for items that,

immediately prior to July 1, 2014, were classified under 1C018.b through .m. (2) See ECCNs 1C011, 1C111, and 1C239 for additional controlled energetic materials, including chlorine trifluoride (ClF_3), which is controlled under ECCN 1C111.a.3.f. (3) See ECCN 1A008 for shaped charges, detonating cord, and cutters and severing tools.

1C101 Materials for Reduced Observables such as Radar Reflectivity, Ultraviolet/Infrared Signatures and Acoustic Signatures (i.e., Stealth Technology), Other than Those Controlled by 1C001, for applications usable in rockets, missiles, or unmanned aerial vehicles capable of achieving a "range" equal to or greater than 300km, and their subsystems.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Materials controlled by this entry include structural materials and coatings (including paints), "specially designed" for reduced or tailored reflectivity or emissivity in the microwave, infrared or ultraviolet spectra. (2) This entry does not control coatings (including paints) when specially used for the thermal control of satellites. (3) For commodities that meet the definition of defense articles under 22 CFR 120.3 of the International Traffic in Arms Regulations (ITAR), which describes similar commodities "subject to the ITAR" (See 22 CFR parts 120 through 130, including USML Category XIII).
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C102 Resaturated pyrolized carbon-carbon materials designed for space launch vehicles specified in 9A004 or sounding rockets specified in 9A104. (These items are "subject to the ITAR." See 22 CFR parts120 through 130.)

1C107 Graphite and ceramic materials, other than those controlled by 1C007, which can be machined to any of the following products as follows (see List of Items Controlled).

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See also 1C004, 1C007, and 1C298. (2) For commodities that meet the definition of defense articles under 22 CFR 120.3 of the ITAR, which describes similar commodities "subject to the ITAR" (See 22 CFR parts120 through 130, including USML Category XIII). (3) "Special fissile materials" and "other fissile

materials"; except, four "effective grams" or less when contained in a sensing component in instruments are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

a. Fine grain graphites with a bulk density of 1.72 g/cm^3 or greater, measured at 15 °C, and having a grain size of 100 micrometers or less, usable for rocket nozzles and reentry vehicle nose tips as follows:

a.1. Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;

a.2. Tubes having an inner diameter of 65 mm or greater and a wall thickness of 25 mm or greater and a length of 50 mm or greater;

a.3. Blocks having a size of 120 mm x 120 mm x 50 mm or greater.

b. Pyrolytic or fibrous reinforced graphites, usable for rocket nozzles and reentry vehicle nose tips;

c. Ceramic composite materials (dielectric constant is less than 6 at any frequency from 100 MHz to 100 GHz) for use in radomes useable in rockets, missiles, and unmanned aerial vehicles capable of achieving a "range" equal to or greater than 300 km; *or*

d. High-temperature ceramic materials, useable in rockets, missiles, and unmanned aerial vehicles capable of achieving a "range" equal to or greater than 300 km, as follows:

d.1. Bulk machinable silicon-carbide reinforced unfired ceramic, usable for nose tips.

d.2. Reinforced silicon-carbide ceramic composites usable for nose tips, re-entry vehicles, nozzle flaps.

d.3. Bulk machinable ceramic composite materials consisting of an 'Ultra High Temperature Ceramic (UHTC)' matrix with a melting point equal to or greater than 3000°C and reinforced with fibers or filaments, usable for missile components (such as nose tips, re-entry vehicles, leading edges, jet vanes, control surfaces, or rocket motor throat inserts).

***Note: ECCN** 1C107.d.3. does not control 'Ultra High Temperature Ceramic (UHTC)' materials in non-composite form.*

***Technical Note:** 'Ultra High Temperature Ceramics (UHTC)' includes: titanium diboride (TiB_2), zirconium diboride (ZrB_2), niobium diboride (NbB_2), hafnium diboride (HfB_2), tantalum diboride (TaB_2), titanium carbide (TiC), zirconium carbide (ZrC), niobium carbide (NbC), hafnium carbide (HfC), tantalum carbide (TaC).*

1C111 Propellants and constituent chemicals for propellants, other than those specified in 1C011, as follows (see List of Items Controlled).

License Requirements

Reason for Control: MT, NP, RS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
NP applies to 1C111.a.3.f only	NP Column 1
RS applies to 1C111.d.3 only	RS Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See USML Category V(e)(7) for controls on HTPB (hydroxyl terminated polybutadiene) with a hydroxyl functionality equal to or greater than 2.2 and less than or equal to 2.4, a hydroxyl value of

less than 0.77 meq/g, and a viscosity at 30 °C of less than 47 poise (CAS # 69102-90-5). (2) See USML Category V(f)(3) for controls on ferrocene derivatives, including butacene. (3) See ECCN 1C608 for controls on oxidizers that are composed of fluorine and also other halogens, oxygen, or nitrogen, except for chlorine trifluoride, which is controlled under this ECCN 1C111.a.3.f. (4) See ECCN 1C011.b for controls on boron and boron alloys not controlled under this ECCN 1C111.a.2.b. (5) See USML Category V(d)(10) for controls on Inhibited Red Fuming Nitric Acid (IRFNA) (CAS 8007-58-7).

Related Definitions: Particle size is the mean particle diameter on a weight or volume basis. Best industrial practices must be used in sampling, and in determining particle size, and the controls may not be undermined by the addition of larger or smaller sized material to shift the mean diameter.

Items:

a. Propulsive substances:

a.1. Spherical or spheroidal aluminum powder (C.A.S. 7429-90-5) in particle size of less than 200 x 10^{-6} m (200 µm) and an aluminum content of 97% by weight or more, if at least 10 % of the total weight is made up of particles of less than 63 µm, according to ISO 2591-1:1988 or national equivalents.

Technical Note: *A particle size of 63 µm (ISO R-565) corresponds to 250 mesh (Tyler) or 230 mesh (ASTM standard E-11).*

a.2. Metal powders and alloys where at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 µ (determined by measurement techniques such as using a sieve, laser diffraction or optical scanning), whether spherical, atomized, spheroidal, flaked or ground, as follows:

a.2.a. Consisting of 97% by weight or more of any of the following:

a.2.a.1. Zirconium (C.A.S. # 7440-67-7);

a.2.a.2. Beryllium (C.A.S. # 7440-41-7); or

a.2.a.3. Magnesium (C.A.S. # 7439-95-4);.

a.2.b. Boron or boron alloys with a boron content of 85 % or more by weight.

Technical Note: *The natural content of hafnium in the zirconium (typically 2% to 7%) is counted with the zirconium.*

Note: *In a multimodal particle distribution (e.g., mixtures of different grain sizes) in which one or more modes are controlled, the entire powder mixture is controlled.*

a.3. Oxidizer substances usable in liquid propellant rocket engines, as follows:

a.3.a. Dinitrogen trioxide (CAS 10544-73-7);

a.3.b. Nitrogen dioxide (CAS 10102-44-0) / dinitrogen tetroxide (CAS 10544-72-6);

a.3.c. Dinitrogen pentoxide (CAS 10102-03-1);

a.3.d. Mixed oxides of nitrogen (MON);

a.3.e. [Reserved];

a.3.f. Chlorine trifluoride (ClF_3).

Technical Note: *Mixed oxides of nitrogen (MON) are solutions of nitric oxide (NO) in dinitrogen tetroxide/nitrogen dioxide (N_2O_4/NO_2) that can be used in missile systems. There are a range of compositions that can be denoted as MONi or MONij, where i and j are integers representing the percentage of nitric oxide in the mixture (e.g., MON3 contains 3% nitric oxide,*

MON25 25% nitric oxide. An upper limit is MON40, 40% by weight).

b. Polymeric substances:

b.1. Carboxy-terminated polybutadiene (including carboxyl-terminated polybutadiene) (CTPB);

b.2. Hydroxy-terminated polybutadiene (including hydroxyl-terminated polybutadiene) (HTPB) (CAS 69102-90-5), except for hydroxyl-terminated polybutadiene as specified in USML Category V (see 22 CFR 121.1) (also see Related Controls Note #1 for this ECCN);

b.3. Polybutadiene acrylic acid (PBAA);

b.4. Polybutadiene acrylic acid acrylonitrile (PBAN) (CAS 25265-19-4 / CAS 68891-50-9);

b.5. Polytetrahydrofuran polyethylene glycol (TPEG).

Technical Note: *Polytetrahydrofuran polyethylene glycol (TPEG) is a block copolymer of poly 1,4-Butanediol (CAS 110-63-4) and polyethylene glycol (PEG) (CAS 25322-68-3).*

c. Other propellant energetic materials, additives, or agents:

c.1. [Reserved]

c.2. Triethylene glycol dinitrate (TEGDN);

c.3. 2 Nitrodiphenylamine (2-NDPA);

c.4. Trimethylolethane trinitrate (TMETN);

c.5. Diethylene glycol dinitrate (DEGDN).

d. Hydrazine and derivatives as follows:

d.1. Hydrazine (C.A.S. # 302–01–2) in concentrations of 70% or more;

d.2. Monomethyl hydrazine (MMH) (C.A.S. # 60–34–4);

d.3. Symmetrical dimethyl hydrazine (SDMH) (C.A.S. # 540–73–8);

d.4. Unsymmetrical dimethyl hydrazine (UDMH) (C.A.S. # 57–14–7);

d.5. Trimethylhydrazine (C.A.S. # 1741-01-1);

d.6. Tetramethylhydrazine (C.A.S. # 6415-12-9);

d.7. N,N diallylhydrazine (CAS 5164-11-4);

d.8. Allylhydrazine (C.A.S. # 7422-78-8);

d.9. Ethylene dihydrazine (CAS 6068-98-0);

d.10. Monomethylhydrazine dinitrate;

d.11. Unsymmetrical dimethylhydrazine nitrate;

d.12. 1,1-Dimethylhydrazinium azide (CAS 227955-52-4) / 1,2-Dimethylhydrazinium azide (CAS 299177-50-7);

d.13. Hydrazinium azide (C.A.S. # 14546-44-2);

d.14. Hydrazinium dinitrate (CAS 13464-98-7);

d.15. Diimido oxalic acid dihydrazine (C.A.S. # 3457-37-2);

d.16. 2-hydroxyethylhydrazine nitrate (HEHN);

d.17. Hydrazinium diperchlorate (C.A.S. # 13812-39-0);

d.18. Methylhydrazine nitrate (MHN) (CAS 29674-96-2);

d.19. 1,1-Diethylhydrazine nitrate (DEHN) / 1,2-Diethylhydrazine nitrate (DEHN) (CAS 363453-17-2);

d.20. 3,6-dihydrazino tetrazine nitrate (DHTN), also referred to as 1,4-dihydrazine nitrate.

1C116 Maraging steels having both of the following (see List of Items Controlled).

License Requirements

Reason for Control: MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
NP applies to items that meet or exceed the parameters of 1C216	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E101 ("use") for technology for items controlled by this entry. (2) Also see ECCN 1C216. (3) Maraging steel, in physical forms and finished products and "specially designed" or prepared for use in separating uranium isotopes, is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
Items:

a. Having an ultimate tensile strength, measured at 20°C, equal to or greater than:

a.1. 0.9 GPa in the solution annealed stage; *or*

a.2. 1.5 GPa in the precipitation hardened stage; *and*

b. Any of the following forms:

b.1. Sheet, plate or tubing with a wall or plate thickness equal to or less than 5.0 mm; *or*

b.2. Tubular forms with a wall thickness equal to or less than 50 mm and having an inner diameter equal to or greater than 270 mm.

Technical Note:
Maraging steels are iron alloys that are generally:

a. Characterized by high nickel, very low carbon content and use substitutional elements or precipitates to produce strengthening and age-hardening of the alloy; and

b. Subjected to heat treatment cycles to facilitate the martensitic transformation process (solution annealed stage) and subsequently age hardened (precipitation hardened stage).

1C117 Materials for the fabrication of missile "parts" or "components" for rockets or missiles capable of achieving a "range" equal to or greater than 300 km, as follows (see List of Items Controlled).

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See 1C226.
Related Definitions: N/A
Items:

a. Tungsten and alloys in particulate form with a tungsten content of 97% by weight or more and a particle size of 50 x 10^{-6} m (50 µm) or less;

b. Molybdenum and alloys in particulate form with a molybdenum content of 97% by weight or more and a particle size of 50 x 10^{-6} m (50 µm) or less;

c. Tungsten materials in the solid form having all of the following:

c.1. Any of the following material compositions:

c.1.a. Tungsten and alloys containing 97% by weight or more of tungsten;

c.1.b. Copper infiltrated tungsten containing 80% by weight or more of tungsten; *or*

c.1.c. Silver infiltrated tungsten containing 80% by weight or more of tungsten; *and*

c.2. Able to be machined to any of the following products:

c.2.a. Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;

c.2.b. Tubes having an inner diameter of 65 mm or greater and a wall thickness of 25 mm or greater and a length of 50 mm or greater; *or*

c.2.c. Blocks having a size of 120 mm x 120 mm x 50 mm or greater.

1C118 Titanium-stabilized duplex stainless steel (Ti-DSS), having all of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. Having all of the following characteristics:

a.1. Containing 17.0-23.0% by weight of chromium and 4.5-7.0% by weight of nickel;

a.2. Having a titanium content of greater than 0.10% by weight; *and*

a.3. A ferritic-austenitic microstructure (also referred to as a two-phase microstructure) of which at least 10% by volume (according to ASTM E-1181-87 or national equivalents) is austenite; *and*

b. Having any of the following forms:

b.1. Ingots or bars having a size of 100 mm or more in each dimension;

b.2. Sheets having a width of 600 mm or more and a thickness of 3 mm or less; *or*

b.3. Tubes having an outer diameter of 600 mm or more and a wall thickness of 3 mm or less.

1C202 Alloys, other than those controlled by 1C002.b.3 or 1C002.b.4 as follows (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: 1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCN 1C002. (3) Aluminum alloys and titanium alloys, in physical forms and finished products and "specially designed" or prepared for use in separating uranium isotopes, are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: The phrase "capable of" refers to aluminum alloys and titanium alloys either before or after heat treatment.
Items:

a. Aluminum alloys having both of the following characteristics:

a.1. "Capable of" an ultimate tensile strength of 460 MPa or more at 293 K (20 °C); *and*

a.2. In the form of tubes or cylindrical solid forms (including forgings) with an outside diameter of more than 75 mm;

b. Titanium alloys having both of the following characteristics:

b.1. "Capable of" an ultimate tensile strength of 900 MPa or more at 293 K (20 °C); *and*

b.2. In the form of tubes or cylindrical solid forms (including forgings) with an outside diameter of more than 75 mm.

1C210 "Fibrous or filamentary materials" or prepregs, other than those controlled by 1C010.a, .b or .e, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCNs 1C010 and 1C990.

Related Definitions: For the purpose of this entry, the term "fibrous or filamentary materials" is restricted to continuous "monofilaments", "yarns", "rovings", "tows", or "tapes".
Definitions for other terms used in this entry:
Filament or Monofilament is the smallest increment of fiber, usually several µm in diameter.
Strand is a bundle of filaments (typically over 200) arranged approximately parallel.

Roving is a bundle (typically 12-120) of approximately parallel strands.
Yarn is a bundle of twisted strands.
Tow is a bundle of filaments, usually approximately parallel.
Tape is a material constructed of interlaced or unidirectional filaments, strands, rovings, tows or yarns, etc., usually preimpregnated with resin.
Specific modulus is the Young's modulus in N/m^2 divided by the specific weight in N/m^3, measured at a temperature of (296 ± 2) K ((23 ± 2) °C) and a relative humidity of 50 ± 5 percent.
Specific tensile strength is the ultimate tensile strength in N/m^2 divided by specific weight in N/m^3, measured at a temperature of (296 ± 2) K ((23 ± 2) °C) and a relative humidity of 50 ± 5 percent.

Items:

a. Carbon or aramid "fibrous or filamentary materials" having a "specific modulus" of 12.7 x 10^6 m or greater or a "specific tensile strength" of 235 x 10^3 m or greater *except* Aramid "fibrous or filamentary materials" having 0.25 percent or more by weight of an ester based fiber surface modifier;

b. Glass "fibrous or filamentary materials" having a "specific modulus" of 3.18 x 10^6 m or greater and a "specific tensile strength" of 76.2 x 10^3 m or greater; *or*

c. Thermoset resin impregnated continuous "yarns", "rovings", "tows" or "tapes" with a width no greater than 15 mm (prepregs), made from carbon or glass "fibrous or filamentary materials" controlled by 1C210.a or .b.

Technical Note: *The resin forms the matrix of the composite.*

1C216 Maraging steel, other than that controlled by 1C116, "capable of" an ultimate tensile strength of 1,950 MPa or more, at 293 K (20 °C).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCN 1C116. (3) Maraging steel, in physical form and finished products "specially designed" or prepared for use in separating uranium isotopes, is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

Related Definitions: The phrase "capable of" in the ECCN heading refers to maraging steel either before or after heat treatment.
ECCN Controls: This entry does not control forms in which all linear dimensions are 75 mm or less.

Items:

The list of items controlled is contained in the ECCN heading.

1C225 Boron enriched in the boron-10 (^{10}B) isotope to greater than its natural isotopic abundance, as follows: elemental boron, compounds, mixtures containing boron, manufactures thereof, waste or scrap of any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: In this entry, mixtures containing boron include boron-loaded materials.
Items:

The list of items controlled is contained in the ECCN heading.

***Technical Note*:** *The natural isotopic abundance of boron-10 is approximately 18.5 weight percent (20 atom percent).*

1C226 Tungsten, tungsten carbide, and alloys containing more than 90% tungsten by weight, having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
ECCN Controls: This entry does not control manufactures "specially designed" as weights or gamma-ray collimators.
Items:

a. In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 and 300 mm; *and*

b. A mass greater than 20 kg.

1C227 Calcium having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and

1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. Containing less than 1,000 parts per million by weight of metallic impurities other than magnesium; *and*

b. Containing less than 10 parts per million by weight of boron.

1C228 Magnesium having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. Containing less than 200 parts per million by weight of metallic impurities other than calcium; *and*

b. Containing less than 10 parts per million by weight of boron.

1C229 Bismuth having both of the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

a. A purity of 99.99% or greater by weight; *and*

b. Containing less than 10 parts per million by weight of silver.

1C230 Beryllium metal, alloys containing more than 50% beryllium by weight, beryllium compounds, manufactures thereof, and waste or scrap of any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
ECCN Controls: This entry does not control the following:
a. Metal windows for X-ray machines, or for bore-hole logging devices;
b. Oxide shapes in fabricated or semi-fabricated forms "specially designed" for electronic component parts or as substrates for electronic circuits;
c. Beryl (silicate of beryllium and aluminum) in the form of emeralds or aquamarines.
Items:

The list of items controlled is contained in the ECCN heading.

1C231 Hafnium metal, hafnium alloys and compounds containing more than 60% hafnium by weight, manufactures thereof, and waste or scrap of any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C232 Helium-3 (^{3}He), mixtures containing helium-3, and products or devices containing any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
ECCN Controls: This entry does not control a product or device containing less than 1 g of helium-3.
Items:

The list of items controlled is contained in the ECCN heading.

1C233 Lithium enriched in the lithium-6 (^{6}Li) isotope to greater than its natural isotopic abundance, and products or devices containing enriched lithium, as follows: elemental lithium, alloys, compounds, mixtures containing lithium, manufactures thereof, and waste or scrap of any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) See ECCN 1B233 for lithium isotope separation facilities or plants, and equipment therefor. (3) Certain facilities or plants for the separation of lithium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: The natural isotopic abundance of lithium-6 is approximately 6.5 weight percent (7.5 atom percent).
ECCN Controls: This entry does not control thermoluminescent dosimeters.
Items:

The list of items controlled is contained in the ECCN heading.

1C234 Zirconium with a hafnium content of less than 1 part hafnium to 500 parts zirconium by weight, as follows: metal, alloys containing more than 50% zirconium by weight, compounds, manufactures thereof, and waste or scrap of any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Zirconium metal and alloys in the form of tubes or assemblies of tubes, "specially designed" or prepared for use in a reactor, are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
ECCN Controls: This entry does not control zirconium in the form of foil having a thickness of 0.10 mm (0.004 in.) or less.
Items:

The list of items controlled is contained in the ECCN heading.

1C235 Tritium, tritium compounds, mixtures containing tritium in which the ratio of tritium to hydrogen atoms exceeds 1 part in 1,000, and products or devices containing any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Also see ECCN 1B231. (3) Tritium that is byproduct material (e.g., produced in a nuclear reactor) is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
ECCN Controls: (1) This entry does not control tritium, tritium compounds, and mixtures that are byproduct material (e.g., produced in a nuclear reactor) – such materials are subject to the licensing jurisdiction of the Nuclear Regulatory Commission (see Related Controls paragraph for this entry). (2) This entry does not control a product or device containing less than 1.48 x 10^3 GBq (40 Ci) of tritium.
Items:

The list of items controlled is contained in the ECCN heading.

1C236 Radionuclides appropriate for making neutron sources based on alpha-n reaction and products or devices containing such radionuclides (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Certain alpha-emitting radionuclides are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
ECCN Controls: This entry does not control a product or device containing less than 3.7 GBq (100 millicuries) of activity.
Items:

a. Radionuclides identified in 1C236.a.1 in any of the forms described in 1C236.a.2:

a.1. Radionuclides, as follows, appropriate for making neutron sources based on alpha-n reactions:

a.1.a. Actinium 225;

a.1.b. Actinium 227;

a.1.c. Californium 253;

a.1.d. Curium 240;

a.1.e. Curium 241;

a.1.f. Curium 242;

a.1.g. Curium 243;

a.1.h. Curium 244;

a.1.i. Einsteinium 253;

a.1.j. Einsteinium 254;

a.1.k. Gadolinium 148;

a.1.l. Plutonium 236;

a.1.m. Plutonium 238;

a.1.n. Polonium 208;

a.1.o. Polonium 209;

a.1.p. Polonium 210;

a.1.q. Radium 223;

a.1.r. Thorium 227;

a.1.s. Thorium 228;

a.1.t. Uranium 230;

a.1.u. Uranium 232; and

a.2. In any of the following forms:

a.2.a. Elemental;

a.2.b. Compounds having a total activity of 37 GBq (1 curie) per kg or greater; *or*

a.2.c. Mixtures having a total activity of 37 GBq (1 curie) per kg or greater.

b. Products or devices containing radionuclides identified in 1C236.a.1 in any of the forms described in 1C236.a.2.

1C237 Radium-226 (^{226}Ra), radium-226 alloys, radium-226 compounds, mixtures containing radium-226, manufactures thereof, and products or devices containing any of the foregoing.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry.
Related Definitions: N/A
ECCN Controls: This entry does not control the following:
a. Medical applicators;
b. A product or device containing less than 0.37 GBq (10 millicuries) of radium-226.
Items:

The list of items controlled is contained in the ECCN heading.

1C239 High explosives, other than those controlled by the U.S. Munitions List, or substances or mixtures containing more than 2% by weight thereof, with a crystal density greater than 1.8 g/cm^3 and having a detonation velocity greater than 8,000 m/s.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part*

	738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) See ECCNs 1C608 (energetic materials and related commodities on the Wassenaar Arrangement Munitions List) and 1C992 (commercial charges and devices containing energetic materials, n.e.s and nitrogen trifluoride in a gaseous state). (3) High explosives for military use are "subject to the ITAR" (see 22 CFR part 121.1).

Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C240 Nickel powder or porous nickel metal, specially prepared for the manufacture of gaseous diffusion barriers subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110), as follows (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 1E001 ("development" and "production") and 1E201 ("use") for technology for items controlled by this entry. (2) Nickel powder and porous nickel metal, "specially designed" or prepared for use in separating uranium isotopes, are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).
Related Definitions: N/A
ECCN Controls: This entry does not control the following:

a. Filamentary nickel powders;

b. Single porous nickel sheets with an area of 1,000 cm^2 per sheet or less.

Items:

a. Nickel powder having both of the following characteristics:

a.1. A nickel purity content of 99.0% or greater by weight; and

a.2. A mean particle size of less than 10 micrometers measured by American Society for Testing and Materials (ASTM) B330 standard;

b. Porous nickel metal produced from materials controlled by 1C240.a.

***Technical Note*:** *1C240.b refers to porous metal formed by compacting and sintering the materials in 1C240.a to form a metal material with fine pores interconnected throughout the structure.*

1C241 Rhenium and alloys containing

rhenium (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. Rhenium and alloys containing rhenium, as follows, having both of the characteristics described in 1C241.b:

a.1. Alloys containing 90% by weight or more of rhenium;

a.2. Alloys containing 90% by weight or more of any combination of rhenium and tungsten; *and*

b. Having both of the following characteristics:

b.1. In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 mm and 300 mm; *and*

b.2. A mass greater than 20 kg.

1C298 Graphite with a boron content of less than 5 parts per million and a density greater than 1.5 grams per cubic centimeter that is intended for use other than in a nuclear reactor.

License Requirements

Reason for Control: NP

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 2

License Requirement Note: Some graphite intended for use in a nuclear reactor is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) See also 1C107. (2) Graphite having a purity level of less than 5 parts per million "boron equivalent" as measured according to ASTM standard C-1233-98 and intended for use in a nuclear reactor is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR 110).

Related Definitions: For the purpose of this entry, graphite with a purity level better than 5 parts per million boron equivalent is determined according to ASTM standard C1233-98. In applying ASTM standard C1233-98, the boron equivalence of the element carbon is not included in the boron equivalence calculation, since carbon is not considered an impurity.

Items:

The list of items controlled is contained in the ECCN heading.

1C350 Chemicals that may be used as precursors for toxic chemical agents (see List of Items Controlled).

License Requirements:

Reason for Control: CB, CW, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to entire entry	CB Column 2

CW applies to 1C350 .b, and .c. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for CW reasons. A license is required, for CW reasons, to export or reexport Schedule 2 chemicals and mixtures identified in 1C350.b to States not Party to the CWC (destinations not listed in Supplement No. 2 to part 745 of the EAR). A license is required, for CW reasons, to export Schedule 3 chemicals and mixtures identified in 1C350.c to States not Party to the CWC, unless an End-Use Certificate issued by the government of the importing country has been obtained by the exporter prior to export. A license is required, for CW reasons, to reexport Schedule 3 chemicals and mixtures identified in 1C350.c from a State not Party to the CWC to any other State not Party to the CWC. (See §742.18 of the EAR for license requirements and policies for toxic and precursor chemicals controlled for CW reasons. See §745.2 of the EAR for End-Use Certificate requirements that apply to exports of Schedule 3 chemicals to countries not listed in Supplement No. 2 to part 745 of the EAR.)

AT applies to entire entry. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for AT reasons in 1C350. A license is required, for AT reasons, to export or reexport items controlled by 1C350 to a country in Country Group E:1 of Supplement No. 1 to part 740 of the EAR. (See part 742 of the EAR for additional information on the AT controls that apply to Iran, North Korea, Sudan, and Syria. See part 746 of the EAR for additional information on sanctions that apply to Iran, North Korea, and Syria.)

License Requirement Notes:

1. SAMPLE SHIPMENTS: Subject to the following requirements and restrictions, a license is not required for sample shipments when the cumulative total of these shipments does not exceed a 55-gallon container or 200 kg of a single chemical to any one consignee during a calendar year. A consignee that receives a sample shipment under this exclusion may not resell, transfer, or reexport the sample shipment, but may use the sample shipment for any other legal purpose unrelated to chemical weapons.

a. Chemicals Not Eligible:

A. [Reserved]

B. CWC Schedule 2 chemicals (States not Party to the CWC). No CWC Schedule 2 chemical or mixture identified in 1C350.b is eligible for sample shipment to States not Party to the CWC (destinations not listed in Supplement No. 2 to part 745 of the EAR) without a license.

b. Countries Not Eligible: Countries in Country Group E:1 of Supplement No. 1 to part 740 of the EAR are not eligible to receive sample shipments of any chemicals controlled by this ECCN without a license.

c. Sample shipments that require an End-Use Certificate for CW reasons: No CWC Schedule 3 chemical or mixture identified in 1C350.c is eligible for sample shipment to States not Party to the CWC (destinations not listed in Supplement No. 2 to part 745 of the EAR) without a license, unless an End-Use Certificate issued by the government of the importing country is obtained by the exporter prior to export (see §745.2 of the EAR for End-Use Certificate requirements).

d. Sample shipments that require a license for reasons set forth elsewhere in the EAR: Sample shipments, as described in this Note 1, may require a license for reasons set forth elsewhere in the EAR. See, in particular, the

end-use/end-user restrictions in part 744 of the EAR, and the restrictions that apply to embargoed countries in part 746 of the EAR.

e. Annual report requirement. The exporter is required to submit an annual written report for shipments of samples made under this Note 1. The report must be on company letterhead stationery (titled "Report of Sample Shipments of Chemical Precursors" at the top of the first page) and identify the chemical(s), Chemical Abstract Service Registry (C.A.S.) number(s), quantity(ies), the ultimate consignee's name and address, and the date of export for all sample shipments that were made during the previous calendar year. The report must be submitted no later than February 28 of the year following the calendar year in which the sample shipments were made, to: U.S. Department of Commerce, Bureau of Industry and Security, 14th Street and Pennsylvania Ave., NW., Room 2099B, Washington, DC 20230, Attn: "Report of Sample Shipments of Chemical Precursors."

2. MIXTURES:

a. Mixtures that contain precursor chemicals identified in ECCN 1C350, in concentrations that are below the levels indicated in 1C350.b through .d, are controlled by ECCN 1C395 or 1C995 and are subject to the licensing requirements specified in those ECCNs.

b. A license is not required under this ECCN for a mixture, when the controlled chemical in the mixture is a normal ingredient in consumer goods packaged for retail sale for personal use. Such consumer goods are designated EAR99. However, a license may be required for reasons set forth elsewhere in the EAR.

Note to Mixtures: *Calculation of concentrations of AG-controlled chemicals:*

a. Exclusion. No chemical may be added to the mixture (solution) for the sole purpose of circumventing the Export Administration Regulations;

b. Percent Weight Calculation. When calculating the percentage, by weight, of ingredients in a chemical mixture, include all ingredients of the mixture, including those that act as solvents.

3. COMPOUNDS. Compounds created with any chemicals identified in this ECCN 1C350 may be shipped NLR (No License Required), without obtaining an End-Use Certificate, unless those compounds are also identified in this entry or require a license for reasons set forth elsewhere in the EAR.

4. TESTING KITS: Certain medical, analytical, diagnostic, and food testing kits containing small quantities of chemicals identified in this ECCN 1C350, are excluded from the scope of this ECCN and are controlled under ECCN 1C395 or 1C995. (Note that replacement reagents for such kits are controlled by this ECCN 1C350 if the reagents contain one or more of the precursor chemicals identified in 1C350 in concentrations equal to or greater than the control levels for mixtures indicated in 1C350.)

Technical Notes:

1. For purposes of this entry, a "mixture" is defined as a solid, liquid or gaseous product made up of two or more ingredients that do not react together under normal storage conditions.

2. The scope of this control applicable to Hydrogen Fluoride (see 1C350.d.14 in the List of Items Controlled) includes its liquid, gaseous, and aqueous phases, and hydrates.

3. Precursor chemicals in ECCN 1C350 are listed by name, Chemical Abstract Service (CAS) number and CWC Schedule (where applicable). Precursor chemicals of the same structural formula (e.g., hydrates) are controlled by ECCN 1C350, regardless of name or CAS number. CAS numbers are shown to assist in identifying whether a particular precursor chemical or mixture is controlled under ECCN 1C350, irrespective of nomenclature. However, CAS numbers cannot be used as unique identifiers in all situations because some forms of the listed

precursor chemical have different CAS numbers, and mixtures containing a precursor chemical listed in ECCN 1C350 may also have different CAS numbers.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See USML Category XIV(c) for related chemicals "subject to the ITAR" (see 22 CFR parts 120 through 130).
Related Definitions: See §770.2(k) of the EAR for synonyms for the chemicals listed in this entry.
Items:

a. [Reserved]

b. Australia Group-controlled precursor chemicals also identified as Schedule 2 chemicals under the CWC, as follows, and mixtures in which at least one of the following chemicals constitutes 30 percent or more of the weight of the mixture:

b.1. (C.A.S. #7784-34-1) Arsenic trichloride;

b.2. (C.A.S. #76-93-7) Benzilic acid;

b.3. (C.A.S. #78-38-6) Diethyl ethylphosphonate;

b.4. (C.A.S. #683-08-9) Diethyl methylphosphonate;

b.5. (C.A.S. #15715-41-0) Diethyl methylphosphonite;

b.6. (C.A.S.#2404-03-7) Diethyl-N,N-dimethylphosphoroamidate;

b.7. (C.A.S.# 41480-75-5) N,N-Diisopropylaminoethanethiol hydrochloride;

b.8. (C.A.S. #5842-07-9) N,N-Diisopropyl-beta-aminoethane thiol;

b.9. (C.A.S. #96-80-0) N,N-Diisopropyl-beta-aminoethanol;

b.10. (C.A.S. #96-79-7), N,N-Diisopropyl-beta-aminoethyl chloride;

b.11. (C.A.S. #4261-68-1) N,N-Diisopropyl-beta-aminoethyl chloride hydrochloride;

b.12. (C.A.S. #6163-75-3) Dimethyl ethylphosphonate;

b.13. (C.A.S. #756-79-6) Dimethyl methylphosphonate;

b.14. (C.A.S. #677-43-0) N,N-dimethylamino-phosphoryl dichloride;

b.15. (C.A.S. #1498-40-4) Ethyl phosphonous dichloride [Ethyl phosphinyl dichloride];

b.16. (C.A.S. #430-78-4) Ethyl phosphonus difluoride [Ethyl phosphinyl difluoride];

b.17. (C.A.S. #1066-50-8) Ethyl phosphonyl dichloride;

b.18. (C.A.S. #993-13-5) Methylphosphonic acid;

b.19. (C.A.S. #676-98-2) Methylphosphonothioic dichloride.

b.20. (C.A.S. #464-07-3) Pinacolyl alcohol;

b.21. (C.A.S. #1619-34-7) 3-Quinuclidinol;

b.22. (C.A.S. #111-48-8) Thiodiglycol.

c. Australia Group-controlled precursor chemicals also identified as Schedule 3 chemicals under the CWC, as follows, and mixtures in which at least one of the following chemicals

constitutes 30 percent or more of the weight of the mixture:

c.1. (C.A.S. #762-04-9) Diethyl phosphite;

c.2. (C.A.S. #868-85-9) Dimethyl phosphite (dimethyl hydrogen phosphite);

c.3. (C.A.S. #139-87-7) Ethyldiethanolamine;

c.4. (C.A.S. #10025-87-3) Phosphorus oxychloride;

c.5. (C.A.S. #10026-13-8) Phosphorus pentachloride;

c.6. (C.A.S. #7719-12-2) Phosphorus trichloride;

c.7. (C.A.S. #10545-99-0) Sulfur dichloride;

c.8. (C.A.S. #10025-67-9) Sulfur monochloride;

c.9. (C.A.S. #7719-09-7) Thionyl chloride;

c.10. (C.A.S. #102-71-6) Triethanolamine;

c.11. (C.A.S. #122-52-1) Triethyl phosphite;

c.12. (C.A.S. #121-45-9) Trimethyl phosphite.

d. Other Australia Group-controlled precursor chemicals not also identified as Schedule 1, 2, or 3 chemicals under the CWC, as follows, and mixtures in which at least one of the following chemicals constitutes 30 percent or more of the weight of the mixture:

d.1. (C.A.S. #1341-49-7) Ammonium hydrogen fluoride;

d.2. (C.A.S. #107-07-3) 2-Chloroethanol;

d.3. (C.A.S. #109-89-7) Diethylamine;

d.4. (C.A.S. #100-37-8) N,N-Diethylaminoethanol;

d.5. (C.A.S. #589-57-1) Diethyl chlorophosphite;

d.6. (C.A.S. #298-06-6) O,O-Diethyl phosphorodithioate;

d.7. (C.A.S. #2465-65-8) O,O-Diethyl phosphorothioate;

d.8. (C.A.S. #108-18-9) Di-isopropylamine;

d.9. (C.A.S. #124-40-3) Dimethylamine;

d.10. (C.A.S. #506-59-2) Dimethylamine hydrochloride;

d.11. (C.A.S. #762-77-6) Ethyl chlorofluorophosphate;

d.12. (C.A.S. #1498-51-7) Ethyl dichlorophosphate;

d.13. (C.A.S. #460-52-6) Ethyl difluorophosphate;

d.14. (C.A.S. #7664-39-3) Hydrogen fluoride;

d.15. (C.A.S. #3554-74-3) 3-Hydroxyl-1-methylpiperidine;

d.16. (C.A.S. #76-89-1) Methyl benzilate;

d.17. (C.A.S. #754-01-8) Methyl chlorofluorophosphate;

d.18. (C.A.S. #677-24-7) Methyl dichlorophosphate;

d.19. (C.A.S. #22382-13-4) Methyl difluorophosphate;

d.20. (C.A.S. #14277-06-6) N,N Diethylacetamidine;

d.21. (C.A.S. #53510-30-8) N,N-Diethylbutanamidine;

d.22. (C.A.S. #90324-67-7) N,N-Diethylformamidine;

d.23. (C.A.S. #1342789-47-2) N,N Diethylisobutanamidine;

d.24. (C.A.S. #84764-73-8) N,N-Diethylpropanamidine;

d.25. (C.A.S. #1315467-17-4) N,N-Diisopropylbutanamidine;

d.26. (C.A.S. #857522-08-8) N,N-Diisopropylformamidine;

d.27. (C.A.S. #2909-14-0) N,N-Dimethylacetamidine;

d.28. (C.A.S. #1340437-35-5) N,N-Dimethylbutanamidine;

d.29. (C.A.S. #44205-42-7) N,N-Dimethylformamidine;

d.30. (C.A.S. #321881-25-8) N,N-Dimethylisobutanamidine;

d.31. (C.A.S. #56776-14-8) N,N-Dimethylpropanamidine;

d.32. (C.A.S. #1339586-99-0) N,N-Dipropylacetamidine;

d.33. C.A.S. #1342422-35-8) N,N-Dipropylbutanamidine;

d.34. (C.A.S. #48044-20-8) N,N-Dipropylformamidine;

d.35. (C.A.S. #1342700-45-1) N,N-Dipropylisobutanamidine;

d.36. (C.A.S. #1341496-89-6) N,N-Dipropylpropanamidine;

d.37. (C.A.S. #1314-80-3) Phosphorus pentasulfide;

d.38. (C.A.S. #75-97-8) Pinacolone;

d.39. (C.A.S. #7789-29-9) Potassium bifluoride;

d.40. (C.A.S. #151-50-8) Potassium cyanide;

d.41. (C.A.S. #7789-23-3) Potassium fluoride;

d.42. (C.A.S. #3731-38-2) 3-Quinuclidone;

d.43. (C.A.S. #1333-83-1) Sodium bifluoride;

d.44. (C.A.S. #143-33-9) Sodium cyanide;

d.45. (C.A.S. #7681-49-4) Sodium fluoride;

d.46. (C.A.S. #16893-85-9) Sodium hexafluorosilicate;

d.47. (C.A.S. #1313-82-2) Sodium sulfide;

d.48. (C.A.S. #637-39-8) Triethanolamine hydrochloride;

d.49. (C.A.S. #116-17-6) Tri-isopropyl phosphite.

1C351 Human and animal pathogens and "toxins", as follows (see List of Items Controlled).

License Requirements

Reason for Control: CB, CW, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to entire entry	CB Column 1

CW applies to 1C351.d.11 and d.12 and a license is required for CW reasons for all destinations, including Canada, as follows: CW applies to 1C351.d.11 for ricin in the form of (1) Ricinus Communis AgglutininII (RCAII), also known as ricin D or Ricinus Communis LectinIII (RCLIII) and (2) Ricinus Communis LectinIV (RCLIV),

also known as ricin E. CW applies to 1C351.d.12 for saxitoxin identified by C.A.S. #35523-89-8. See §742.18 of the EAR for licensing information pertaining to chemicals subject to restriction pursuant to the Chemical Weapons Convention (CWC). The Commerce Country Chart is not designed to determine licensing requirements for items controlled for CW reasons.

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

License Requirement Notes:

1. All vaccines and "immunotoxins" are excluded from the scope of this entry. Certain medical products and diagnostic and food testing kits that contain biological toxins controlled under paragraph (d) of this entry, with the exception of toxins controlled for CW reasons under d.11 and d.12, are excluded from the scope of this entry. Vaccines, "immunotoxins", certain medical products, and diagnostic and food testing kits excluded from the scope of this entry are controlled under ECCN 1C991.

2. For the purposes of this entry, only saxitoxin is controlled under paragraph d.12; other members of the paralytic shellfish poison family (e.g., neosaxitoxin) are designated EAR99.

3. Clostridium perfringens strains, other than the epsilon toxin-producing strains of Clostridium perfringens described in c.12, are excluded from the scope of this entry, since they may be used as positive control cultures for food testing and quality control.

4. Unless specified elsewhere in this ECCN 1C351 (e.g., in License Requirement Notes 1-3), this ECCN controls all biological agents and "toxins," regardless of quantity or attenuation, that are identified in the List of Items Controlled for this ECCN, including small quantities or attenuated strains of select biological agents or "toxins" that are excluded from the lists of select biological agents or "toxins" by the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, or the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, in accordance with their regulations in 9 CFR part 121 and 42 CFR part 73, respectively.

5. Biological agents and pathogens are controlled under this ECCN 1C351 when they are an isolated live culture of a pathogen agent, or a preparation of a toxin agent that has been isolated or extracted from any source or material, including living material that has been deliberately inoculated or contaminated with the agent. Isolated live cultures of a pathogen agent include live cultures in dormant form or in dried preparations, whether the agent is natural, enhanced or modified.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

Special Conditions for STA

STA: (1) Paragraph (c)(1) of License Exception STA (§740.20(c)(1)) may be used for items in 1C351.d.1 through 1C351.d.10 and 1C351.d.13 through 1C351.d.19. See §740.20(b)(2)(vi) for restrictions on the quantity of any one toxin that may be exported in a single shipment and the number of shipments that may be made to any one end user in a single calendar year. Also see the Automated Export System (AES) requirements in §758.1(b)(4) of the EAR.
(2) Paragraph (c)(2) of License Exception STA (§740.20(c)(2) of the EAR) may not be used for any items in 1C351

List of Items Controlled

Related Controls: (1) Certain forms of ricin and saxitoxin in 1C351.d.11. and d.12 are CWC Schedule 1 chemicals (see §742.18 of the EAR). The U.S. Government must provide advance notification and annual reports to the OPCW of all exports of Schedule 1 chemicals. See §745.1 of the EAR for notification procedures. See 22 CFR part 121, Category XIV and §121.7 for CWC Schedule 1 chemicals that are "subject to the ITAR." (2) The Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, and the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, maintain controls on the possession, use, and transfer within the United States of certain items controlled by this ECCN (for APHIS, see 7 CFR 331.3(b), 9 CFR 121.3(b), and 9 CFR 121.4(b); for CDC, see 42 CFR 73.3(b) and 42 CFR 73.4(b)). (3) See 22 CFR part 121, Category XIV(b), for modified biological agents and biologically derived substances that are "subject to the ITAR."

Related Definitions: (1) For the purposes of this entry "immunotoxin" is defined as an antibody-toxin conjugate intended to destroy specific target cells (e.g., tumor cells) that bear antigens homologous to the antibody. (2) For the purposes of this entry "subunit" is defined as a portion of the "toxin".

Items:

a. Viruses identified on the Australia Group (AG) "List of Human and Animal Pathogens and Toxins for Export Control," as follows:

a.1. African horse sickness virus;

a.2. African swine fever virus;

a.3. Andes virus;

a.4. Avian influenza (AI) viruses identified as having high pathogenicity (HP), as follows:

a.4.a. AI viruses that have an intravenous pathogenicity index (IVPI) in 6-week-old chickens greater than 1.2; *or*

a.4.b. AI viruses that cause at least 75% mortality in 4- to 8-week-old chickens infected intravenously.

Note: *Avian influenza (AI) viruses of the H5 or H7 subtype that do not have either of the characteristics described in 1C351.a.4 (specifically, 1C351.a.4.a or a.4.b) should be sequenced to determine whether multiple basic amino acids are present at the cleavage site of the haemagglutinin molecule (HA0). If the amino acid motif is similar to that observed for other HPAI isolates, then the isolate being tested should be considered as HPAI and the virus is controlled under* 1C351.a.4.

a.5. Bluetongue virus;

a.6. Chapare virus;

a.7. Chikungunya virus;

a.8. Choclo virus;

a.9. Classical swine fever virus (Hog cholera virus);

a.10. Crimean-Congo hemorrhagic fever virus;

a.11. Dobrava-Belgrade virus;

a.12. Eastern equine encephalitis virus;

a.13. Ebolavirus (includes all members of the Ebolavirus genus);

a.14. Foot-and-mouth disease virus;

a.15. Goatpox virus;

a.16. Guanarito virus;

a.17. Hantaan virus;

a.18. Hendra virus (Equine morbillivirus);

a.19. Japanese encephalitis virus;

a.20. Junin virus;

a.21. Kyasanur Forest disease virus;

a.22. Laguna Negra virus;

a.23. Lassa virus;

a.24. Louping ill virus;

a.25. Lujo virus;

a.26. Lumpy skin disease virus;

a.27. Lymphocytic choriomeningitis virus;

a.28. Machupo virus;

a.29. Marburgvirus (includes all members of the Marburgvirus genus);

a.30. Middle East respiratory syndrome-related coronavirus (MERS-related coronavirus);

a.31. Monkeypox virus;

a.32. Murray Valley encephalitis virus;

a.33. Newcastle disease virus;

a.34. Nipah virus;

a.35. Omsk hemorrhagic fever virus;

a.36. Oropouche virus;

a.37. Peste-des-petits ruminants virus;

a.38. Porcine Teschovirus;

a.39. Powassan virus;

a.40. Rabies virus and all other members of the Lyssavirus genus;

a.41. Reconstructed 1918 influenza virus;

Technical Note: *1C351.a.41 includes reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments.*

a.42. Rift Valley fever virus;

a.43. Rinderpest virus;

a.44. Rocio virus;

a.45. Sabia virus;

a.46. Seoul virus;

a.47. Severe acute respiratory syndrome-related coronavirus (SARS-related coronavirus);

a.48. Sheeppox virus;

a.49. Sin Nombre virus;

a.50. St. Louis encephalitis virus;

a.51. Suid herpesvirus 1 (Pseudorabies virus; Aujeszky's disease);

a.52. Swine vesicular disease virus;

a.53. Tick-borne encephalitis virus (Far Eastern subtype, formerly known as Russian Spring-Summer encephalitis virus—see 1C351.b.3 for Siberian subtype);

a.54. Variola virus;

a.55. Venezuelan equine encephalitis virus;

a.56. Vesicular stomatitis virus;

a.57. Western equine encephalitis virus; or

a.58. Yellow fever virus.

b. Viruses identified on the APHIS/CDC “select agents” lists (see Related Controls paragraph #2 for this ECCN), but not identified on the Australia Group (AG) “List of Human and Animal

Pathogens and Toxins for Export Control," as follows:

b.1. [Reserved];

b.2. [Reserved]; *or*

b.3. Tick-borne encephalitis virus (Siberian subtype, formerly West Siberian virus—see 1C351.a.53 for Far Eastern subtype).

c. Bacteria identified on the Australia Group (AG) "List of Human and Animal Pathogens and Toxins for Export Control," as follows:

c.1. Bacillus anthracis;

c.2. Brucella abortus;

c.3. Brucella melitensis;

c.4. Brucella suis;

c.5. Burkholderia mallei (Pseudomonas mallei);

c.6. Burkholderia pseudomallei (Pseudomonas pseudomallei);

c.7. Chlamydia psittaci (Chlamydophila psittaci);

c.8. Clostriduim argentinense (formerly known as Clostridium botulinum Type G), botulinum neurotoxin producing strains;

c.9. Clostridium baratii, botulinum neurotoxin producing strains;

c.10. Clostridium botulinum;

c.11. Clostridium butyricum, botulinum neurotoxin producing strains;

c.12. Clostridium perfringens, epsilon toxin producing types;

c.13. Coxiella burnetii;

c.14. Francisella tularensis;

c.15. Mycoplasma capricolum subspecies capripneumoniae ("strain F38");

c.16. Mycoplasma mycoides subspecies mycoides SC (small colony) (a.k.a. contagious bovine pleuropneumonia);

c.17. Rickettsia prowazekii;

c.18. Salmonella enterica subspecies enterica serovar Typhi (Salmonella typhi);

c.19. Shiga toxin producing Escherichia coli (STEC) of serogroups O26, O45, O103, O104, O111, O121, O145, O157, and other shiga toxin producing serogroups;

Note: *Shiga toxin producing Escherichia coli (STEC) includes, inter alia, enterohaemorrhagic E. coli (EHEC), verotoxin producing E. coli (VTEC) or verocytotoxin producing E. coli (VTEC).*

c.20. Shigella dysenteriae;

c.21. Vibrio cholerae; *or*

c.22. Yersinia pestis.

d. "Toxins" identified on the Australia Group (AG) "List of Human and Animal Pathogens and Toxins for Export Control," as follows, and "subunits" thereof:

d.1. Abrin;

d.2. Aflatoxins;

d.3. Botulinum toxins;

d.4. Cholera toxin;

d.5. Clostridium perfringens alpha, beta 1, beta 2, epsilon and iota toxins;

d.6. Conotoxins;

d.7. Diacetoxyscirpenol;

d.8. HT-2 toxin;

d.9. Microcystins (Cyanginosins);

d.10. Modeccin;

d.11. Ricin;

d.12. Saxitoxin;

d.13. Shiga toxins (shiga-like toxins, verotoxins, and verocytotoxins);

d.14. Staphylococcus aureus enterotoxins, hemolysin alpha toxin, and toxic shock syndrome toxin (formerly known as Staphylococcus enterotoxin F);

d.15. T-2 toxin;

d.16. Tetrodotoxin;

d.17. Viscumin (Viscum album lectin 1); *or*

d.18. Volkensin.

e. "Fungi", as follows:

e.1. Coccidioides immitis; *or*

e.2. Coccidioides posadasii.

1C353 Genetic elements and genetically-modified organisms, as follows (see List of Items Controlled).

License Requirements

Reason for Control: CB, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to entire entry	CB Column 1
AT applies to entire entry	AT Column 1

License Requirement Notes:

1. Vaccines that contain genetic elements or genetically modified organisms identified in this ECCN are controlled by ECCN 1C991.

2. Unless specified elsewhere in this ECCN 1C353 (e.g., in License Requirement Note 1), this ECCN controls genetic elements or genetically modified organisms for all biological agents and "toxins," regardless of quantity or attenuation, that are identified in the List of Items Controlled for this ECCN, including genetic elements or genetically modified organisms for attenuated strains of select biological agents or "toxins" that are excluded from the lists of select biological agents or "toxins" by the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, or the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, in accordance with the APHIS regulations in 7 CFR part 331 and 9 CFR part 121 and the CDC regulations in 42 CFR part 73.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) The Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, and the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, maintain controls on the possession, use, and transfer within the United States of certain items controlled by this ECCN, including (but not limited to) certain genetic elements, recombinant nucleic acids, and recombinant organisms associated with the agents or toxins in ECCN 1C351 or 1C354 (for APHIS, see 7 CFR 331.3(c), 9 CFR 121.3(c), and 9 CFR 121.4(c); for CDC, see 42 CFR 73.3(c) and 42 CFR 73.4(c)). (2) See 22 CFR part 121, Category XIV(b), for modified biological agents and biologically derived substances that are subject to the export licensing jurisdiction of the U.S. Department

of State, Directorate of Defense Trade Controls.

Related Definition: N/A
Items:

a. Any genetically modified organism that contains, or any genetic element that codes for, any of the following:

a.1. Any gene or genes specific to any virus controlled by 1C351.a or .b or 1C354.c;

a.2. Any gene or genes specific to any bacterium controlled by 1C351.c or 1C354.a, or any fungus controlled by 1C351.e or 1C354.b, and which:

a.2.a. In itself or through its transcribed or translated products represents a significant hazard to human, animal or plant health; *or*

a.2.b. Could endow or enhance pathogenicity; *or*

a.3. Any toxins, or their subunits, controlled by 1C351.d.

b. [Reserved].

Technical Notes:

1. Genetically modified organisms include organisms in which the nucleic acid sequences have been created or altered by deliberate molecular manipulation.

2. "Genetic elements" include, inter alia, chromosomes, genomes, plasmids, transposons, vectors, and inactivated organisms containing recoverable nucleic acid fragments, whether genetically modified or unmodified, or chemically synthesized in whole or in part. For the purposes of this ECCN 1C353, nucleic acids from an inactivated organism, virus, or sample are considered to be 'recoverable' if the inactivation and preparation of the material is intended or known to facilitate isolation, purification, amplification, detection, or identification of nucleic acids.

3. This ECCN does not control nucleic acid sequences of shiga toxin producing Escherichia coli of serogroups O26, O45, O103, O104, O111, O121, O145, O157, and other shiga toxin producing serogroups, other than those genetic elements coding for shiga toxin, or for its subunits.

4. 'Endow or enhance pathogenicity' is defined as when the insertion or integration of the nucleic acid sequence or sequences is/are likely to enable or increase a recipient organism's ability to be used to deliberately cause disease or death. This might include alterations to, inter alia: virulence, transmissibility, stability, route of infection, host range, reproducibility, ability to evade or suppress host immunity, resistance to medical countermeasures, or detectability.

1C354 Plant pathogens, as follows (see List of Items Controlled).

License Requirements

Reason for Control: CB, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to entire entry	CB Column 1
AT applies to entire entry	AT Column 1

License Requirement Note:

1. All vaccines are excluded from the scope of this ECCN. See ECCN 1C991 for vaccines.

2. Unless specified elsewhere in this ECCN 1C354 (e.g., in License Requirement Note 1), this ECCN controls all biological agents, regardless of quantity or attenuation, that are identified in the List of Items Controlled for this ECCN, including small quantities or attenuated strains of select biological agents that are excluded from the list of PPQ select agents and "toxins" by the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, in accordance with their regulations in 7 CFR part 331.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) The Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, maintains controls on the possession, use, and transfer within the United States of certain items controlled by this ECCN (see 7 CFR 331.3(c), 9 CFR 121.3(c), and 9 CFR 121.4(c)).
(2) See 22 CFR part 121, Category XIV(b), for modified biological agents and biologically derived substances that are subject to the export licensing jurisdiction of the U.S. Department of State, Directorate of Defense Trade Controls.

Related Definitions: N/A
Items:

a. Bacteria, as follows:

a.1. *Xanthomonas albilineans*;

a.2. *Xanthomonas axonopodis* pv. *citri* (*Xanthomonas campestris* pv. *citri* A) (*Xanthomonas campestris* pv. *citri*);

a.3. *Xanthomonas oryzae* [this species of proteobacteria is identified on the APHIS "select agents" list (see Related Controls paragraph for this ECCN), but only the *pathovar Xanthomonas oryzae* pv. *oryzae* (syn. *Pseudomonas campestris* pv. *oryzae*) is identified on the Australia Group (AG) "List of Plant Pathogens for Export Control"];

a.4. *Clavibacter michiganensis* subspecies *sepedonicus* (syn. *Corynebacterium michiganensis* subspecies *sepedonicum* or *Corynebacterium sepedonicum*);

a.5. *Ralstonia solanacearum*, race 3, biovar 2;

a.6. *Raythayibactor toxicus* [this bacterium is identified on the APHIS "select agents" list (see the Related Controls paragraph for this ECCN), but is not identified on the Australia Group (AG) "List of Plant Pathogens for Export Control"].

b. Fungi, as follows:

b.1. *Colletotrichum kahawae* (*Colletotrichum coffeanum* var. *virulans*);

b.2. *Cochliobolus miyabeanus* (*Helminthosporium oryzae*);

b.3. *Microcyclus ulei* (syn. *Dothidella ulei*);

b.4. *Puccinnia graminis* ssp. *graminis* var. *graminis* / *Puccinia graminis* ssp. *graminis* var. *stakmanii* (*Puccinia graminis* [syn. *Puccinia graminis* f. sp. *tritici*]);

b.5. *Puccinia striiformis* (syn. *Puccinia glumarum*);

b.6. *Magnaporthe oryzae* (*Pyricularia oryzae*);

b.7. *Peronosclerospora philippinensis* (*Peronosclerospora sacchari*);

b.8. *Sclerophthora rayssiae* var. *zeae*;

b.9. *Synchytrium endobioticum*;

b.10. *Tilletia indica*;

b.11. *Thecaphora solani*;

b.12. *Phoma glycinicola* (formerly *Pyrenochaeta glycines*) [this fungus is identified on the APHIS "select agents" list (see the Related Controls paragraph for this ECCN), but is not identified on the Australia Group (AG) "List of Plant Pathogens for Export Control"].

c. Viruses, as follows:

c.1. Andean potato latent virus (Potato Andean latent tymovirus);

c.2. Potato spindle tuber viroid.

1C355 Chemical Weapons Convention (CWC) Schedule 2 and 3 chemicals and families of chemicals not controlled by ECCN 1C350 or "subject to the ITAR" (see 22 CFR parts) (see List of Items Controlled).

License Requirements

Reason for Control: CW, AT

Control(s)

CW applies to entire entry. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for CW reasons. A license is required to export or reexport CWC Schedule 2 chemicals and mixtures identified in 1C355.a to States not Party to the CWC (destinations not listed in Supplement No. 2 to part 745 of the EAR). A license is required to export CWC Schedule 3 chemicals and mixtures identified in 1C355.b to States not Party to the CWC, unless an End Use Certificate issued by the government of the importing country is obtained by the exporter, prior to export. A license is required to reexport CWC Schedule 3 chemicals and mixtures identified in 1C355.b from a State not Party to the CWC to any other State not Party to the CWC. (See §742.18 of the EAR for license requirements and policies for toxic and precursor chemicals controlled for CW reasons.)

AT applies to entire entry. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for AT reasons in 1C350. A license is required, for AT reasons, to export or reexport items controlled by 1C350 to a country in Country Group E:1 of Supplement No. 1 to part 740 of the EAR. (See part 742 of the EAR for additional information on the AT controls that apply to Iran, North Korea, Sudan, and Syria. See part 746 of the EAR for additional information on sanctions that apply to Iran, North Korea, and Syria.)

License Requirements Notes:

1. MIXTURES:

a. Mixtures containing toxic and precursor chemicals identified in ECCN 1C355, in concentrations that are below the control levels indicated in 1C355.a and .b, are controlled by ECCN 1C995 and are subject to the license requirements specified in that ECCN.

b. Mixtures containing chemicals identified in this entry are not controlled by ECCN 1C355 when the controlled chemical is a normal ingredient in consumer goods packaged for retail sale for personal use or packaged for individual use. Such consumer goods are classified as EAR99.

Note to mixtures: *Calculation of concentrations of CW-controlled chemicals:*

a. Exclusion. No chemical may be added to the mixture (solution) for the sole purpose of circumventing the Export Administration Regulations;

b. Percent Weight Calculation. When calculating the percentage, by weight, of ingredients in a chemical mixture, include all ingredients of the mixture, including those that act as solvents.

2. COMPOUNDS: Compounds created with any chemicals identified in this ECCN 1C355 may be shipped NLR (No License Required), without obtaining an End-Use Certificate, unless those compounds are also identified in this entry or require a license for reasons set forth elsewhere in the EAR.

Technical Notes: *For purposes of this entry, a "mixture" is defined as a solid, liquid or gaseous product made up of two or more ingredients that do not react together under normal storage conditions.*

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See also ECCNs 1C350 1C351, 1C395, and 1C995. See §§742.18 and 745.2 of the EAR for End-Use Certification requirements.

Related Definitions: N/A
Items:

a. CWC Schedule 2 chemicals and mixtures containing Schedule 2 chemicals:

a.1. Toxic chemicals, as follows, and mixtures containing toxic chemicals:

a.1.a. PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene (C.A.S. 382-21-8) and mixtures in which PFIB constitutes more than 1 percent of the weight of the mixture;

a.1.b. [Reserved]

a.2. Precursor chemicals, as follows, and mixtures in which at least one of the following precursor chemicals constitutes more than 10 percent of the weight of the mixture:

a.2.a. Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl, or propyl (normal or iso) group but not further carbon atoms.

***Note**: 1C355.a.2.a does not control Fonofos: O-Ethyl S-phenyl ethylphosphonothiolothionate (C.A.S. 944-22-9).*

a.2.b. FAMILY: N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides;

a.2.c. FAMILY: Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr, or i-Pr)-phosphoramidates;

a.2.d. FAMILY: N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2-chlorides and corresponding protonated salts;

a.2.e. FAMILY: N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts;

***Note**: 1C355.a.2.e. does not control N,N-Dimethylaminoethanol and corresponding protonated salts (C.A.S. 108-01-0) or N,N-Diethylaminoethanol and corresponding protonated salts (C.A.S. 100-37-8).*

a.2.f. FAMILY: N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts.

b. CWC Schedule 3 chemicals and mixtures containing Schedule 3 chemicals:

b.1. Toxic chemicals, as follows, and mixtures in which at least one of the following toxic chemicals constitutes 30 percent or more of the weight of the mixture:

b.1.a. Phosgene: Carbonyl dichloride (C.A.S. 75-44-5);

b.1.b. Cyanogen chloride (C.A.S. 506-77-4);

b.1.c. Hydrogen cyanide (C.A.S. 74-90-8);

b.1.d. Chloropicrin: Trichloronitromethane (CAS 76-06-2).

b.2. Precursor chemicals, as follows, and mixtures in which at least one of the following precursor chemicals constitutes 30 percent or more of the weight of the mixture:

b.2.a. [Reserved];

b.2.b. Methyldiethanolamine (C.A.S. 105-59-9).

1C395 Mixtures and medical, analytical, diagnostic, and food testing kits not controlled by ECCN 1C350, as follows (See List of Items Controlled).

License Requirements

Reason for Control: CB, CW, AT

Control(s)

CB applies to entire entry. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for CB reasons in 1C395. A license is required, for CB reasons, to export or reexport mixtures controlled by 1C395.a and test kits controlled by 1C395.b to States not Party to the CWC (destinations not listed in Supplement No. 2 to part 745 of the EAR).

CW applies to entire entry. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for CW reasons. A license is required for CW reasons, as follows, to States not Party to the CWC (destinations not listed in Supplement No. 2 to part 745 of the EAR): (1) exports and reexports of mixtures controlled by 1C395.a, (2) exports and reexports of test kits controlled by 1C395.b that contain CWC Schedule 2 chemicals controlled by ECCN 1C350, (3) exports of test kits controlled by 1C395.b that contain CWC Schedule 3 chemicals controlled by ECCN 1C350, except that a license is not required, for CW reasons, to export test kits containing CWC Schedule 3 chemicals if an End Use Certificate issued by the government of the importing country is obtained by the exporter prior to export, and (4) reexports from States not Party to the CWC of test kits controlled by 1C395.b that contain CWC Schedule 3 chemicals. (See §742.18 of the EAR for license requirements and policies for toxic and precursor chemicals controlled for CW reasons.)

AT applies to entire entry. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for AT reasons in 1C395. A license is required, for AT reasons, to export or reexport items controlled by 1C395 to a country in Country Group E:1 of Supplement No. 1 to part 740 of the EAR. (See part 742 of the EAR for additional information on the AT controls that apply to Iran, North Korea, Sudan, and Syria. See part 746 of the EAR for additional information on sanctions that apply to Iran, North Korea, and Syria.)

License Requirements Notes

1. 1C395.b does not control mixtures that contain precursor chemicals identified in ECCN 1C350.b or .c in concentrations below the control levels for mixtures indicated in 1C350.b or .c. 1C395.a and 1C995.a.1 and a.2.a control such mixtures, unless they are consumer goods, as described in License Requirements Note 2 of this ECCN.

2. This ECCN does not control mixtures when the controlled chemicals are normal ingredients in consumer goods packaged for retail sale for personal use. Such consumer goods are classified as EAR99.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: 1. ECCN 1C350 controls mixtures containing 30 percent or higher concentrations, by weight, of any single CWC Schedule 2 chemical identified in ECCN 1C350.b; ECCN 1C995 controls such mixtures containing concentrations of 10 percent or less. 2. ECCN 1C995 controls "medical, analytical, diagnostic, and food testing kits" (as defined in the Related Definitions paragraph of this ECCN) that contain precursor chemicals listed in ECCN 1C350.d. ECCN 1C350 controls any such kits in which the amount of any single chemical listed in 1C350.b, .c, or .d exceeds 300 grams by weight.

Related Definitions: For the purpose of this entry, "medical, analytical, diagnostic, and food testing kits" are pre-packaged materials of defined composition that are specifically developed, packaged and marketed for medical, analytical, diagnostic, or public health purposes. Replacement reagents for medical, analytical, diagnostic, and food testing kits described in 1C395.b are controlled by ECCN 1C350 if the reagents contain at least one of the precursor chemicals identified in that ECCN in concentrations equal to or greater than the control levels for mixtures indicated in 1C350.b or .c.
Items:

a. Mixtures containing more than 10 percent, but less than 30 percent, by weight of any single CWC Schedule 2 chemical identified in ECCN 1C350.b. (For controls on other mixtures containing these chemicals, see Note 1 in the Related Controls paragraph of this ECCN.)

b. "Medical, analytical, diagnostic, and food testing kits" (as defined in the Related Definitions for this ECCN) that contain CWC Schedule 2 or 3 chemicals controlled by ECCN 1C350.b or .c in an amount *not* exceeding 300 grams per chemical. (For controls on other such test kits containing these and other controlled chemicals, see Note 2 in the Related Controls paragraph of this ECCN.)

1C607 Tear Gases, Riot Control Agents and materials for the detection and decontamination of chemical warfare agents (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry, except 1C607.a.10, .a.11, .a.12, and .a.14	NS Column 1
RS applies to entire entry	RS Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1C607.

List of Items Controlled

Related Controls: (1) See ECCN 1A984 for controls on other riot control agents. (2) See 22 CFR § 121.1 (USML), Category XIV(b), for modified biological agents and biologically derived substances that are subject to the ITAR. (3) See 22 CFR § 121.1 (USML), Category XIV(g), for ITAR controls on antibodies, recombinant protective antigens, polynucleotides, biopolymers or biocatalysts (including the expression vectors, viruses, plasmids, or cultures of specific cells used to produce them) that are "specially designed" for use with articles controlled under USML Category XIV(f). (4) See ECCN 0A919 for "military commodities" located and produced outside the United States that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.
Related Definitions: N/A
Items:

a. Tear gases and riot control agents including:

a.1. CA (Bromobenzyl cyanide) (CAS 5798–79–8);

a.2. CS (o-Chlorobenzylidenemalononitrile or o-Chlorobenzalmalononitrile) (CAS 2698–41–1);

a.3. CN (Phenylacyl chloride or w-

Chloroacetophenone) (CAS 532–27-4);

a.4. CR (Dibenz-(b,f)-1,4-oxazephine) (CAS 257–07–8);

a.5. Adamsite (Diphenylamine chloroarsine or DM) (CAS 578–94–9);

a.6. N-Nonanoylmorpholine, (MPA) (CAS 5299-64-9);

a.7. Dibromodimethyl ether (CAS 4497–29–4);

a.8. Dichlorodimethyl ether (ClCi) (CAS 542–88–1);

a.9. Ethyldibromoarsine (CAS 683–43–2);

a.10. Bromo acetone (CAS 598-31-2);

a.11. Bromo methylethylketone (CAS 816-40-0);

a.12. Iodo acetone (CAS 3019-04-3);

a.13. Phenylcarbylamine chloride (CAS 622-44-6);

a.14. Ethyl iodoacetate (CAS 623-48-3);

Note to 1C607.a: *ECCN 1C607.a. does not control the following: formulations containing 1% or less of CN or CS; individually packaged tear gases or riot control agents for personal self-defense purposes that are controlled by ECCN 1A984; or active constituent chemicals, and combinations thereof, identified and packaged for food production or medical purposes.*

b. "Biopolymers," not controlled by USML Category XIV(g) "specially designed" or processed for the detection or identification of chemical warfare agents specified by USML Category XIV(a), and the cultures of specific cells used to produce them.

c. "Biocatalysts," and biological systems therefor, not controlled by USML Category XIV(g) "specially designed" for the decontamination or degradation of chemical warfare agents controlled in USML Category XIV (a), as follows:

c.1. "Biocatalysts" "specially designed" for the decontamination or degradation of chemical warfare agents controlled in USML Category XIV(a) resulting from directed laboratory selection or genetic manipulation of biological systems;

c.2. Biological systems containing the genetic information specific to the production of "biocatalysts" specified by 1C607.c.1, as follows:

c.2.a. "Expression vectors;"

c.2.b. Viruses; *or*

c.2.c. Cultures of cells.

Note to 1C607.b and .c: *The cultures of cells and biological systems are exclusive and these sub-items do not apply to cells or biological systems for civil purposes, such as agricultural, pharmaceutical, medical, veterinary, environmental, waste management, or in the food industry.*

d. Chemical mixtures not controlled by USML Category XIV(f) "specially designed" for military use for the decontamination of objects contaminated with materials specified by USML Category XIV(a) or (b).

1C608 "Energetic materials" and related commodities (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, MT, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
MT applies to 1C608.m	MT Column 1
AT applies to entire entry	AT Column 1

UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: $1500
GBS: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1C608.

List of Items Controlled

Related Controls: (1) The EAR does not control devices or charges containing materials controlled by USML subparagraphs V(c)(6), V(h), or V(i). The USML controls devices containing such materials. (2) The USML in Categories III, IV, or V controls devices and charges in this entry if they contain materials controlled by Category V (other than slurries) and such materials can be easily extracted without destroying the device or charge. (3) See also explosives and other items enumerated in ECCNs 1A006, 1A007, 1A008, 1C011, 1C111, 1C239, and 1C992. (4) See ECCN 0A919 for foreign-made "military commodities" that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.

Related Definitions: (1) For purposes of this entry, the term 'controlled materials' means controlled energetic materials enumerated in ECCNs 1C011, 1C111, 1C239, 1C608, or USML Category V. (2) For the purposes of this entry, the term 'propellants' means substances or mixtures that react chemically to produce large volumes of hot gases at controlled rates to perform mechanical work.

Items:

a. 'Single base,' 'double base,' and 'triple base' 'propellants' having nitrocellulose with nitrogen content greater than 12.6% in the form of either:

a.1. 'Sheetstock' or 'carpet rolls;' *or*

a.2. Grains with diameter greater than 0.10 inches.

***Note**: This entry does not control 'propellant' grains used in shotgun shells, small arms cartridges, or rifle cartridges.*

***Technical Notes**:*

1. 'Sheetstock' is 'propellant' that has been manufactured in the form of a sheet suitable for further processing.

2. A 'carpet roll' is 'propellant' that has been manufactured as a sheet, often cut to a desired width, and subsequently rolled up (like a carpet).

3. 'Single base' is 'propellant' which consists mostly of nitrocellulose.

4.'Double base' 'propellant' consist mostly of nitrocellulose and nitroglycerine.

5. 'Triple base' consists mostly of nitrocellulose, nitroglycerine, and nitroguanidine. Such 'propellants' contain other materials, such as resins or stabilizers, that could include carbon, salts, burn rate modifiers, nitrodiphenylamine, wax, polyethylene glycol (PEG), polyglycol adipate (PGA).

b. Shock tubes containing greater than 0.064 kg per meter (300 grains per foot), but not more than 0.1 kg per meter (470 grains per foot) of 'controlled materials.'

c. Cartridge power devices containing greater than 0.70 kg, but not more than 1.0 kg of 'controlled materials.'

d. Detonators (electric or nonelectric) and "specially designed" assemblies therefor containing greater than 0.01 kg, but not more than 0.1 kg of 'controlled materials.'

e. Igniters not controlled by USML Categories III or IV that contain greater than 0.01 kg, but not more than 0.1 kg of 'controlled materials.'

f. Oil well cartridges containing greater than 0.015 kg, but not more than 0.1 kg of 'controlled materials.'

g. Commercial cast or pressed boosters containing greater than 1.0 kg, but not more than 5.0 kg of 'controlled materials.'

h. Commercial prefabricated slurries and emulsions containing greater than 10 kg and less than or equal to thirty-five percent by weight of USML 'controlled materials.'

i. [Reserved]

j. "Pyrotechnic" devices "specially designed" for commercial purposes (e.g., theatrical stages, motion picture special effects, and fireworks displays), and containing greater than 3.0 kg, but not more than 5.0 kg of 'controlled materials.'

k. Other commercial explosive devices or charges "specially designed" for commercial applications, not controlled by 1C608.c through .g above, containing greater than 1.0 kg, but not more than 5.0 kg of 'controlled materials.'

l. Propyleneimine (2 methylaziridine) (C.A.S. #75-55-8).

m. Any oxidizer or 'mixture' thereof that is a compound composed of fluorine and any of the following: other halogens, oxygen, or nitrogen.

Note 1 to 1C608.m*: Nitrogen trifluoride (NF3)(CAS 7783-54-2) in a gaseous state is controlled under ECCN 1C992 and not under ECCN 1C608.m.*

Note 2 to 1C608.m*: Chlorine trifluoride (ClF3)(CAS 7790-91-2) is controlled under ECCN 1C111.a.3.f and not under ECCN 1C608.m.*

Note 3 to 1C608.m*: Oxygen difluoride (OF2) is controlled under USML Category V.d.10 (see 22 CFR 121.1) and not under ECCN 1C608.m.*

Note to 1C608.l and m*: If a chemical in ECCN 1C608.l or .m is incorporated into a commercial charge or device described in ECCN 1C608.c through .k or in ECCN 1C992, the classification of the commercial charge or device applies to the item.*

Technical Note to 1C608.m*: 'Mixture' refers to a composition of two or more substances with at least one substance being enumerated in 1C011, 1C111, 1C239, 1C608, USML Category V, or elsewhere on the USML.*

n. Any explosives, 'propellants,' oxidizers, "pyrotechnics," fuels, binders, or additives that are "specially designed" for military application and not enumerated or otherwise described in USML Category V or elsewhere on the USML.

Note 1: *1C608.n does not apply to the following "aircraft" fuels: JP-4, JP-5, and JP-8.*

Note 2: *"Aircraft" fuels specified by 1C608.n, Note 1 are finished products, not their constituents.*

1C980 Inorganic chemicals listed in Supplement No. 1 to part 754 of the EAR that were produced or derived from the Naval Petroleum Reserves (NPR) or became available for export as a result of an exchange of any NPR produced or derived commodities.

License Requirements

Reason for Control: SS

Control(s)

SS applies to entire entry. For licensing requirements (and possible License Exceptions) proceed directly to part 754 of the EAR. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for SS reasons.

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C982 Other petroleum products listed in Supplement No. 1 to part 754 of the EAR that were produced or derived from the Naval Petroleum Reserves (NPR) or became available for export as a result of an exchange of any NPR produced or derived commodities.

License Requirements

Reason for Control: SS

Control(s)

SS applies to entire entry. For licensing requirements (and possible License Exceptions) proceed directly to part 754 of the EAR. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for SS reasons.

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C983 Natural gas liquids and other natural gas derivatives listed in Supplement No. 1 to part 754 of the EAR that were produced or derived from the Naval Petroleum Reserves (NPR) or became available for export as a result of an exchange of any NPR produced or derived commodities.

License Requirements

Reason for Control: SS

Control(s)

SS applies to entire entry. For licensing requirements (and possible License Exceptions) proceed directly to part 754 of the EAR. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for SS reasons.

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C984 Manufactured gas and synthetic natural gas (except when commingled with natural gas and thus subject to export authorization from the Department of Energy) listed in Supplement No. 1 to part 754 of the EAR that were produced or derived from the Naval Petroleum Reserves (NPR) or became available for export as a result of an exchange of any NPR produced or derived commodities.

License Requirements

Reason for Control: SS

Control(s)

SS applies to entire entry. For licensing requirements (and possible License Exceptions) proceed directly to part 754 of the EAR. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for SS reasons.

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C988 Unprocessed western red cedar (thuja plicata) logs and timber, and rough, dressed and worked lumber containing wane, as described in § 754.4 of the EAR.

License Requirements

Reason for Control: SS

Control(s)

SS applies to entire entry. For licensing requirements (and possible License Exceptions) proceed directly to part 754 of the EAR. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for SS reasons.

List of Items Controlled

Related Controls: N/A
Related Definitions: For a non-exhaustive list of 10-digit Harmonized System-based Schedule B commodity numbers that may apply to unprocessed Western Red Cedar products subject to § 754.4 and related definitions, see Supplement No. 2 to part 754 of the EAR.
Items:

The list of items controlled is contained in the ECCN heading.

1C990 Fibrous and filamentary materials, not controlled by 1C010 or 1C210, for use in "composite" structures and with a specific modulus of 3.18 x 10^6 m or greater and a specific tensile strength of 7.62 x 10^4 m or greater.

License Requirements

Reason for Control: AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C991 Vaccines, immunotoxins, medical products, diagnostic and food testing kits, as follows (see List of Items controlled).

License Requirements

Reason for Control: CB, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to 1C991.d	CB Column 3
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Medical products containing ricin or saxitoxin, as follows, are controlled for CW reasons under ECCN 1C351:

(a) Ricinus Communis $Agglutinin_{II}$ (RCA_{II}), also known as ricin D, or Ricinus Communis $Lectin_{III}$ (RCL_{III});

(b) Ricinus Communis $Lectin_{IV}$ (RCL_{IV}), also known as ricin E; or

(c) Saxitoxin identified by C.A.S. #35523-89-8.

(2) The export of a "medical product" that is an "Investigational New Drug" (IND), as defined in 21 CFR §312.3, is subject to certain U.S. Food and Drug Administration (FDA) requirements that are independent of the export requirements specified in this ECCN or elsewhere in the EAR. These FDA requirements are described in 21 CFR §312.110 and must be satisfied in addition to any requirements specified in the EAR.

(3) Also see 21 CFR §314.410 for FDA requirements concerning exports of new drugs and new drug substances.

Related Definitions: For the purpose of this entry, "immunotoxin" is defined as an antibody-toxin conjugate intended to destroy specific target cells (e.g., tumor cells) that bear antigens homologous to the antibody. For the purpose of this entry, "medical products" are: (1) pharmaceutical formulations designed for testing and human administration in the treatment of medical conditions, (2) prepackaged for distribution as clinical or medical products, and (3) approved by the U.S. Food and Drug Administration either to be marketed as clinical or medical products or for use as an "Investigational New Drug" (IND) (see 21 CFR Part 312). For the purpose of this entry, "diagnostic and food testing kits" are specifically developed, packaged and marketed for diagnostic or public health purposes. Biological toxins in any other configuration, including bulk shipments, or for any other end-uses are controlled by ECCN 1C351. For the purpose of this entry, "vaccine" is defined as a medicinal (or veterinary) product in a pharmaceutical formulation, approved by the U.S. Food and Drug Administration or the U.S. Department of Agriculture to be marketed as a medical (or veterinary) product or for use in clinical trials, that is intended to stimulate a protective immunological response in humans or animals in order to prevent disease in those to whom or to which it is administered.

Items:

a. Vaccines against items controlled by ECCN ECCN 1C351, 1C353 or 1C354;

b. Immunotoxins containing items controlled by 1C351.d;

c. Medical products containing botulinum toxins controlled by ECCN 1C351.d.3 or conotoxins controlled by ECCN 1C351.d.6;

d. Medical products containing items controlled by ECCN 1C351.d (except botulinum toxins controlled by ECCN 1C351.d.3, conotoxins controlled by ECCN 1C351.d.6, and items controlled for CW reasons under 1C351.d.11 or .d.12);

e. Diagnostic and food testing kits containing items controlled by ECCN 1C351.d (except items controlled for CW reasons under ECCN 1C351.d.11 or .d.12).

1C992 Commercial charges and devices containing energetic materials, n.e.s. and nitrogen trifluoride in a gaseous state (see List of Items Controlled).

License Requirements

Reason for Control: AT, RS, Foreign policy

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1.
RS applies to entire entry.	A license is required for items controlled by this entry for export or reexport to Iraq and transfer within Iraq for regional stability reasons.

	The Commerce Country Chart is not designed to determine RS license requirements for this entry. See §§ 742.6 and 746.3 of the EAR for additional information.
Russian industry sector sanctions apply to entire entry.	See § 746.5 for specific license requirements and license review policy.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: (1) Commercial charges and devices containing USML controlled energetic materials that exceed the quantities noted or that are not covered by this entry are controlled under ECCN 1C608. (2) Nitrogen trifluoride when not in a gaseous state is controlled under ECCN 1C608.

Related Definitions: (1) Items controlled by this entry 1C992 are those materials not controlled by ECCN 1C608 and not "subject to the ITAR" (see 22 CFR parts 120 through 130). (2) For purposes of this entry, the term "controlled materials" means controlled energetic materials (see ECCNs 1C011, 1C111, 1C239 and 1C608; see also 22 CFR 121.1 Category V). (3) The individual USML controlled energetic materials, even when compounded with other materials, remain "subject to the ITAR" when not incorporated into explosive devices or charges controlled by this entry. (4) Commercial prefabricated slurries and emulsions containing greater than 35% of USML controlled energetic materials are "subject to the ITAR" (see 22 CFR parts 120 through 130). (5) For purposes of this entry, the mass of aluminum powder, potassium perchlorate, and any of the substances listed in the note to the USML (see 22 CFR 121.12) (such as ammonium pictrate, black powder, etc.) contained in commercial explosive devices and in the charges are omitted when determining the total mass of controlled material.

Items:

a. Shaped charges "specially designed" for oil well operations, utilizing one charge functioning along a single axis, that upon detonation produce a hole, and

a.1. Contain any formulation of controlled materials;

a.2. Have only a uniform shaped conical liner with an included angle of 90 degrees or less;

a.3. Contain more than 0.010 kg but less than or equal to 0.090 kg of controlled materials; and

a.4. Have a diameter not exceeding 4.5 inches;

b. Shaped charges "specially designed" for oil well operations containing less than or equal to 0.010 kg of controlled materials;

c. Detonation cord or shock tubes containing less than or equal to 0.064 kg per meter (300 grains per foot) of controlled materials;

d. Cartridge power devices, that contain less than or equal to 0.70 kg of controlled materials in the deflagration material;

e. Detonators (electric or nonelectric) and assemblies thereof, that contain less than or equal to 0.01 kg of controlled materials;

f. Igniters, that contain less than or equal to 0.01 kg of controlled materials;

g. Oil well cartridges, that contain less than or equal to 0.015 kg of controlled energetic materials;

h. Commercial cast or pressed boosters containing less than or equal to 1.0 kg of controlled materials;

i. Commercial prefabricated slurries and emulsions containing less than or equal to 10.0 kg and less than or equal to thirty-five percent by weight of USML controlled materials;

j. Cutters and severing tools containing less than or equal to 3.5 kg of controlled materials;

k. Pyrotechnic devices when designed exclusively for commercial purposes (e.g., theatrical stages, motion picture special effects, and fireworks displays) and containing less than or equal to 3.0 kg of controlled materials; or

l. Other commercial explosive devices and charges not controlled by 1C992.a through .k containing less than or equal to 1.0 kg of controlled materials.

Note: *1C992.l includes automotive safety devices; extinguishing systems; cartridges for riveting guns; explosive charges for agricultural, oil and gas operations, sporting goods, commercial mining, or public works purposes; and delay tubes used in the assembly of commercial explosive devices.*

m. Nitrogen trifluoride (NF_3) in a gaseous state.

1C995 Mixtures not controlled by ECCN 1C350, ECCN 1C355 or ECCN 1C395 that contain chemicals controlled by ECCN 1C350 or ECCN 1C355 and medical, analytical, diagnostic, and food testing kits not controlled by ECCN 1C350 or ECCN 1C395 that contain chemicals controlled by ECCN 1C350.d, as follows (see List of Items Controlled).

License Requirements

Reason for Control: AT, RS

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1
RS applies to entire entry	A license is required for items controlled by this entry for export or reexport to Iraq or transfer within Iraq for regional stability reasons. The Commerce Country Chart is not designed to determine RS license requirements for this entry. See §§742.6 and 746.3 of the EAR for additional information.

License Requirement Notes:

1. This ECCN does not control mixtures containing less than 0.5% of any single toxic or precursor chemical controlled by ECCN 1C350.b, .c, or .d or ECCN 1C355 as unavoidable by-products or impurities. Such mixtures are classified as EAR99.

2. 1C995.c does not control mixtures that contain precursor chemicals identified in 1C350.d in concentrations below the levels for mixtures indicated in 1C350.d. 1C995.a.2.b controls such mixtures, unless they are consumer goods as described in License Requirements Note 3 of this ECCN.

3. This ECCN does not control mixtures when the controlled chemicals are normal ingredients in consumer goods packaged for retail sale for personal use. Such consumer goods are classified as EAR99.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: 1. ECCN 1C350 controls mixtures containing 30 percent or higher concentrations of any single CWC Schedule

2 chemical identified in ECCN 1C350.b. ECCN 1C395 controls mixtures containing concentrations of more than 10 percent, but less than 30 percent, of any single CWC Schedule 2 chemical identified in ECCN 1C350.b. 2. ECCN 1C350 controls mixtures containing chemicals identified in ECCN 1C350.c or .d that exceed the concentration levels indicated in 1C995.a.2. 3. ECCN 1C355 controls mixtures containing chemicals identified in ECCN 1C355 that exceed the concentration levels indicated in 1C995.b. 4. ECCN 1C395 controls "medical, analytical, diagnostic, and food testing kits" (as defined in the Related Controls paragraph of this ECCN) that contain CWC Schedule 2 or 3 chemicals listed in 1C350.b or .c. ECCN 1C350 controls any such testing kits in which the amount of any single chemical listed in 1C350.b, .c., or .d exceeds 300 grams by weight.

Related Definitions: For the purpose of this entry, "medical, analytical, diagnostic, and food testing kits" are pre-packaged materials of defined composition that are specifically developed, packaged and marketed for medical, analytical, diagnostic, or public health purposes. Replacement reagents for medical, analytical, diagnostic, and food testing kits described in 1C995.c are controlled by ECCN 1C350 if the reagents contain at least one of the precursor chemicals identified in that ECCN in concentrations equal to or greater than the control levels for mixtures indicated in 1C350.d.

Items:

a. Mixtures containing the following concentrations of precursor chemicals controlled by ECCN 1C350 (For controls on other mixtures containing these chemicals, see Notes 1 and 2 in the Related Controls paragraph of this ECCN.):

a.1. Mixtures containing 10 percent or less, by weight, of any single CWC Schedule 2 chemical controlled by ECCN 1C350.b;

a.2. Mixtures containing less than 30 percent, by weight, of:

a.2.a. Any single CWC Schedule 3 chemical controlled by ECCN 1C350.c; or

a.2.b. Any single precursor chemical controlled by ECCN 1C350.d.

b. Mixtures containing the following concentrations of toxic or precursor chemicals controlled by ECCN 1C355 (For controls on other mixtures containing these chemicals, see Note 3 in the Related Controls paragraph of this ECCN.):

b.1. Mixtures containing the following concentrations of CWC Schedule 2 chemicals controlled by ECCN 1C355.a:

b.1.a. Mixtures containing 1 percent or less, by weight, of any single CWC Schedule 2 chemical controlled by ECCN 1C355.a.1 (i.e., mixtures containing PFIB); or

b.1.b. Mixtures containing 10 percent or less, by weight, of any single CWC Schedule 2 chemical controlled by 1C355.a.2;

b.2. Mixtures containing less than 30 percent, by weight, of any single CWC Schedule 3 chemical controlled by ECCN 1C355.b.

c. "Medical, analytical, diagnostic, and food testing kits" (as defined in the Related Definitions for this ECCN) that contain precursor chemicals controlled by ECCN 1C350.d in an amount *not* exceeding 300 grams per chemical. (For controls on other such test kits containing these and other controlled chemicals, see Note 4 in the Related Controls paragraph of this ECCN.)

1C996 Hydraulic fluids containing synthetic hydrocarbon oils, not controlled by 1C006, having all the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. A flash point exceeding 477 K (204° C);

b. A pour point at 239 K (-34° C) or less;

c. A viscosity index of 75 or more; *and*

d. A thermal stability at 616 K (343° C).

1C997 Ammonium nitrate, including fertilizers and fertilizer blends containing more than 15% by weight ammonium nitrate, except liquid fertilizers (containing any amount of ammonium nitrate) or dry fertilizers containing less than 15% by weight ammonium nitrate.

License Requirements

Reason for Control: AT, RS

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1
RS applies to entire entry.	A license is required for items controlled by this entry for export or reexport to Iraq or transfer within Iraq for regional stability reasons. The Commerce Country Chart is not designed to determine RS license requirements for this entry. See §§742.6 and 746.3 of the EAR for additional information.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1C998 Non-fluorinated polymeric substances, not controlled by 1C008, as follows (see List of Items Controlled).

License Requirements

Reason for Control: AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. Polyarylene ether ketones, as follows:

a.1 Polyether ether ketone (PEEK);

a.2. Polyether ketone ketone (PEKK);

a.3. Polyether ketone (PEK);

a.4. Polyether ketone ether ketone ketone (PEKEKK);

b. [Reserved].

1C999 Specific materials, n.e.s., as follows (see List of Items Controlled).

License Requirements

Reason for Control: AT, RS

Control(s)

AT applies to entire entry. A license is required for items controlled by this entry to North Korea for anti-terrorism reasons. The Commerce Country Chart is not designed to determine AT license requirements for this entry. See §742.19 of the EAR for additional information.

RS applies to entire entry. A license is required for items controlled by this entry for export or reexport to Iraq or transfer within Iraq for regional stability reasons. The Commerce Country Chart is not designed to determine RS license requirements for this entry. See §§742.6 and 746.3 of the EAR for additional information.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A
GBS: N/A

List of Items Controlled

Related Controls: See also 1C236
Related Definitions: N/A
Items:

a. Hardened steel and tungsten carbide precision ball bearings (3mm or greater diameter);

b. 304 and 316 stainless steel plate, n.e.s.;

c. Monel plate;

d. Tributyl phosphate;

e. Nitric acid in concentrations of 20 weight percent or greater;

f. Fluorine;

g. Alpha-emitting radionuclides, n.e.s.

D. "SOFTWARE"

1D001 "Software" "specially designed" or modified for the "development", "production" or "use" of equipment controlled by 1B001 to 1B003.

License Requirements

Reason for Control: NS, MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
MT applies to "software" for the "development," "production," operation, or maintenance of items controlled by 1B001 for MT reasons.	MT Column 1
NP applies to "software" for the "development", "production" or "use" of items controlled by 1B001 for NP reasons	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: Yes, except N/A for MT

List of Items Controlled

Related Controls: (1) See ECCNs 1E101 ("use") and 1E102 ("development" and "production") for technology for items controlled by this entry. (2) Also see 1D002, 1D101, 1D201, and 1D999.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D002 "Software" for the "development" of organic "matrix", metal "matrix" or carbon "matrix" laminates or "composites".

License Requirements

Reason for Control: NS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
AT applies to entire entry	AT Column 1

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: Yes

Special Conditions for STA

STA: License Exception STA may not be used to ship or transmit "software" for the "development" of organic "matrix", metal "matrix" or carbon "matrix" laminates or "composites" specified in ECCN 1A002 to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls: "Software" for items controlled by 1A102 are "subject to the ITAR" (see 22 CFR parts120 through 130).
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D003 "Software" "specially designed" or modified to enable equipment to perform the functions of equipment controlled under 1A004.c or 1A004.d.

License Requirements

Reason for Control: NS, RS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 2
RS applies to software for equipment controlled by 1A004.d	RS Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D018 "Software" specially designed or modified for the "development", "production", or "use" of items controlled by 1B018.b.

License Requirements

Reason for Control: NS, MT, AT, UN.

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
MT applies to "software" for the "development", "production", operation, or maintenance of items controlled by 1B018 for MT reasons.	MT Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: See ECCN 1D608 for "software" for items classified under ECCN 1B608 that, immediately prior to July 1, 2014, were classified under 1B018.a.

Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D101 "Software" "specially designed" or modified for the operation or maintenance of commodities controlled by 1B101, 1B102, 1B115, 1B117, 1B118, or 1B119.

License Requirements

Reason for Control: MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 2
NP applies to "software" for the "use" of items controlled by 1B101.a	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: See ECCNs 1E101 ("use") and 1E102 ("development" and "production") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D103 "Software" "specially designed" for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures, for applications usable in rockets, missiles, or unmanned aerial vehicles capable of delivering at least a 500 kg payload to a "range" equal to or greater than 300 km and their complete subsystems.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*

MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: (1) This entry includes "software" "specially designed" for analysis of signature reduction. (2) For software that meets the definition of defense articles under 22 CFR 120.3 of the International Traffic in Arms Regulations (ITAR), which describes similar software that are "subject to the ITAR" (see 22 CFR parts 120 through 130, including USML Category XIII).
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D201 "Software" "specially designed" or modified for the "use" of items controlled by 1B201.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: See ECCNs 1E201 ("use") and 1E203 ("development" and "production") for technology for items controlled by this entry.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D390 "Software" for process control that is specifically configured to control or initiate "production" of chemicals controlled by 1C350.

License Requirements

Reason for Control: CB, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to entire entry	CB Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: See Section 772.1 of the EAR for the definitions of "*software*," "*program*," and "*microprogram*."
Items:

The list of items controlled is contained in the ECCN heading.

1D607 "Software" "specially designed" for the "development," "production," operation, or maintenance of items controlled by 1A607, 1B607 or 1C607 (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry, except "software" for 1C607.a.10, .a.11, .a.12, and .a.14	NS Column 1
RS applies to entire entry	RS Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1D607.

List of Items Controlled

Related Controls: (1) "Software" directly related to articles enumerated or otherwise described in USML Category XIV is subject to the ITAR (see 22 CFR § 121.1, Category XIV(m)). "Software" controlled by USML Category XIV(m) includes "software" directly related to any equipment containing reagents, algorithms, coefficients, software, libraries, spectral databases, or alarm set point levels developed under U.S. Department of Defense contract or funding for the detection, identification, warning or monitoring of items controlled in paragraphs (a) or (b) of USML Category XIV, or for chemical or biological agents specified by U.S. Department of Defense funding or contract. (2) See ECCN 0A919 for "military commodities" located and produced outside the United States that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.
Related Definitions: N/A
Items:

a. "Software" "specially designed" for the "development," "production," operation, or maintenance of commodities controlled by ECCN 1A607, 1B607, or 1C607.

b. [Reserved]

1D608 "Software" "specially designed" for the "development," "production," operation, or maintenance of commodities controlled by 1B608 or 1C608 (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, MT, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
MT applies to "software" "specially designed" for the "use" of 1B608 equipment in the "production" and handling of materials controlled by 1C608.m or MT articles in USML Category V	MT Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1D608.

List of Items Controlled

Related Controls: (1) Software directly related to articles enumerated or otherwise described in USML Categories III, IV or V is subject to the controls of those USML Categories, respectively. (2) See ECCN 0A919 for foreign-made "military commodities" that incorporate more than a *de minimis* amount of U.S.-origin "600 series" items.
Related Definitions: N/A
Items:

a. "Software" "specially designed" for the "development," "production," operation, or maintenance of commodities controlled by ECCN 1B608 or 1C608.

b. [Reserved]

1D613 "Software" "specially designed" for the "development," "production," operation, or maintenance of commodities controlled by 1A613 or 1B613, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry except 1D613.y	NS Column 1
RS applies to entire entry except 1D613.y	RS Column 1
RS applies 1D613.y	China, Russia, or Venezuela (see § 724.6(a)(7))
AT applies to entire entry	AT Column 1
UN applies to entire entry, except 1D613.y	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any "software" in 1D613.

List of Items Controlled

Related Controls: (1) "Software" directly related to articles controlled by USML Category X is subject to the control of USML paragraph X(e) of the ITAR. (2) See ECCN 0A919 for foreign-made "military commodities" that incorporate more than a *de minimis* amount of US-origin "600 series" controlled content.

Related Definitions: N/A

Items:

a. "Software" (other than "software" controlled in paragraph .y of this entry) "specially designed" for the "development," "production," operation, or maintenance of commodities controlled by ECCNs 1A613 (except 1A613.y) or 1B613 (except 1B613.y).

b. to x. [Reserved]

y. Specific "software" "specially designed" for the "production," "development," operation, or maintenance of commodities controlled by ECCN 1A613.y.

1D993 "Software" "specially designed" for the "development," "production" or "use" of equipment or materials controlled by 1C210.b, or 1C990.

License Requirements

Reason for Control: AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1D999 Specific software, n.e.s., as follows (see List of Items Controlled).

License Requirements

Reason for Control: AT

Control(s)

AT applies to entire entry. A license is required for items controlled by this entry to North Korea for anti-terrorism reasons. The Commerce Country Chart is not designed to determine AT licensing requirements for this entry. See §742.19 of the EAR for additional information.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: See also 1B999
Related Definitions: N/A
Items:

a. Software "specially designed" for industrial process control hardware/systems controlled by 1B999, n.e.s.;

b. Software "specially designed" for equipment for the production of structural composites, fibers, prepregs and preforms controlled by 1B999, n.e.s.

E. "TECHNOLOGY"

1E001 "Technology" according to the General Technology Note for the "development" or "production" of items controlled by 1A002, 1A003, 1A004, 1A005, 1A006.b, 1A007, 1A008 1A101, 1A231, 1B (except 1B608, 1B613 or 1B999), or 1C (except 1C355, 1C608, 1C980 to 1C984, 1C988, 1C990, 1C991, 1C995 to 1C999).

License Requirements

Reason for Control: NS, MT, NP, CB, RS, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to "technology" for items controlled by 1A002, 1A003, 1A005, 1A006.b, 1A007, 1B001 to 1B003, 1B018, 1C001 to 1C011, or 1C018	NS Column 1.
NS applies to "technology" for items controlled by 1A004	NS Column 2.
MT applies to "technology" for items controlled by 1A101, 1B001, 1B101, 1B102, 1B115 to 1B119, 1C001, 1C007, 1C011, 1C101, 1C102, 1C107, 1C111, 1C116, 1C117, or 1C118 for MT reasons	MT Column 1.
NP applies to "technology" for items controlled by 1A002, 1A007, 1A231, 1B001, 1B101, 1B201, 1B225, 1B226, 1B228 to 1B234, 1C002, 1C010, 1C111, 1C116, 1C202, 1C210, 1C216, 1C225 to 1C237, or 1C239 to 1C241 for NP reasons	NP Column 1.
CB applies to "technology" for items controlled by 1C351, 1C353, or 1C354	CB Column 1.
CB applies to "technology" for materials controlled by 1C350 and for chemical detection systems and	CB Column 2.

dedicated detectors therefor, in 1A004.c, that also have the technical characteristics described in 2B351.a	
RS applies to technology for equipment controlled in 1A004.d	RS Column 2.
AT applies to entire entry	AT Column 1.

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: Yes, except for the following:
1) Items controlled for MT reasons; or
2) Exports and reexports to destinations outside of those countries listed in Country Group A:5 (See Supplement No. 1 to part 740 of the EAR) of "technology" for the "development" or production" of the following:

(a) Items controlled by 1C001; or

(b) Items controlled by 1A002.a which are composite structures or laminates having an organic "matrix" and being made from materials listed under 1C010.c or 1C010.d.

Special Conditions for STA

STA: License Exception STA may not be used to ship or transmit "technology" according to the General Technology Note for the "development" or "production" of equipment and materials specified by ECCNs 1A002, 1C001, 1C007.c , 1C010.c or d or 1C012 to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls (1) Also see ECCNs 1E101, 1E201, and 1E202. (2) See ECCN 1E608 for "technology" for items classified under ECCN 1B608 or 1C608 that, immediately prior to July 1, 2014, were classified under ECCN 1B018.a or 1C018.b through .m (note that ECCN 1E001 controls "development" and "production" "technology" for chlorine trifluoride controlled by ECCN 1C111.a.3.f – see ECCN 1E101 for controls on "use" "technology" for chlorine trifluoride). (3) See ECCN 1E002.g for control libraries (parametric technical databases) "specially designed" or modified to enable equipment to perform the functions of equipment controlled under ECCN 1A004.c (Nuclear, biological and chemical (NBC) detection systems) or ECCN 1A004.d (Equipment for detecting or identifying explosives residues). (4) "Technology" for lithium isotope separation (see related ECCN 1B233) and "technology" for items described in ECCN 1C012 are subject to the export licensing authority of the Department of Energy (see 10 CFR part 810). (5) "Technology" for items described in ECCN 1A102 is "subject to the ITAR" (see 22 CFR parts 120 through 130).

Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E002 Other "technology" as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry, except 1E002.g	NS Column 1
NS applies to 1E002.g	NS Column 2
MT applies to 1E002.e	MT Column 1
NP applies to "technology" for items controlled by 1A002 for NP reasons.	NP Column 1
AT applies to entire entry	AT Column 1

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: Yes, except for 1E002.e and .f.

License Exceptions Note: *License Exception TSU is not applicable for the repair "technology" controlled by 1E002.e or .f, see Supplement No. 2 to part 774.*

Special Conditions for STA

STA: License Exception STA may not be used to ship or transmit any item in 1E002.e or .f to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).

List of Items Controlled

Related Controls: See also 1E001, 1E101, 1E102, 1E202, and 1E994 for "technology" related to 1E002.e or .f.

Related Definitions: N/A
Items:

a. "Technology" for the "development" or "production" of polybenzothiazoles or polybenzoxazoles;

b. "Technology" for the "development" or "production" of fluoroelastomer compounds containing at least one vinylether monomer;

c. "Technology" for the design or "production" of the following ceramic powders or non-"composite" ceramic materials:

c.1. Ceramic powders having all of the following:

c.1.a Any of the following compositions:

c.1.a.1. Single or complex oxides of zirconium and complex oxides of silicon or aluminum;

c.1.a.2. Single nitrides of boron (cubic crystalline forms);

c.1.a.3. Single or complex carbides of silicon or boron; or

c.1.a.4. Single or complex nitrides of silicon;

c.1.b. Any of the following total metallic impurities (excluding intentional additions):

c.1.b.1. Less than 1,000 ppm for single oxides or carbides; or

c.1.b.2. Less than 5,000 ppm for complex compounds or single nitrides; and

c.1.c. Being any of the following:

c.1.c.1. Zirconia (CAS 1314-23-4) with an average particle size equal to or less than 1 µm and no more than 10% of the particles larger than 5 µm; *or*

c.1.c.2. Other ceramic powders with an average particle size equal to or less than 5 µm and no more than 10% of the particles larger than 10 µm;

c.2. Non-"composite" ceramic materials composed of the materials described in 1E002.c.1;

Note: *1E002.c.2 does not control "technology" for abrasives.*

d. [Reserved]

e. "Technology" for the installation, maintenance or repair of materials controlled by 1C001;

f. "Technology" for the repair of "composite" structures, laminates or materials controlled by 1A002 or 1C007.c;

Note: *1E002.f does not control "technology" for the repair of "civil aircraft" structures using carbon "fibrous or filamentary materials" and epoxy resins, contained in "aircraft" manufacturers' manuals.*

g. "Libraries" "specially designed" or modified to enable equipment to perform the functions of equipment controlled under 1A004.c or 1A004.d.

1E101 "Technology", in accordance with the General Technology Note, for the "use" of commodities and "software" controlled by 1A101, 1A102, 1B001, 1B101, 1B102, 1B115 to 1B119, 1C001, 1C007, 1C011, 1C101, 1C107, 1C111, 1C116, 1C117, 1C118, 1D001, 1D101, or 1D103.

License Requirements

Reason for Control: MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to "technology" for commodities and software controlled by 1A101, 1A102, 1B001, 1B101, 1B102, 1B115 to 1B119, 1C001, 1C007, 1C011, 1C101, 1C107, 1C111, 1C116, 1C117, 1C118, 1D001, 1D101, or 1D103 for MT reasons	MT Column 1
NP applies to "technology" for items controlled by 1B001, 1B101, 1C111, 1C116, 1D001, or 1D101 for NP reasons	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: "Technology" for items controlled by 1A102 is "subject to the ITAR" (see 22 CFR parts 120 through 130).

Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E102 "Technology" according to the General Technology Note for the "development" of software controlled by 1D001, 1D101 or 1D103.

License Requirements

Reason for Control: MT, NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
NP applies to "technology" for items controlled by 1D001 and 1D101 for NP reasons	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: This entry includes databases "specially designed" for analysis of signature reduction.
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E103 "Technical data" (including processing conditions) and procedures for the regulation of temperature, pressure or atmosphere in autoclaves or hydroclaves, when used for the "production" of "composites" or partially processed "composites", usable for equipment or materials specified in 1C007, 1C102, 1C107, 1C116, 1C117, 1C118, 9A110, and 9C110.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: See also 1E203
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E104 "Technology" for the "production" of pyrolytically derived materials formed on a mold, mandrel or other substrate from precursor gases which decompose in the 1,573 K (1,300 °C) to 3,173 K (2,900 °C) temperature range at pressures of 130 Pa (1 mm Hg) to 20 kPa (150 mm Hg), including "technology" for the composition of precursor gases, flow-rates and process control schedules and parameters.

License Requirements

Reason for Control: MT, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E201 "Technology" according to the General Technology Note for the "use" of items controlled by 1A002, 1A007, 1A202, 1A225 to 1A227, 1A231, 1B201, 1B225, 1B226, 1B228 to 1B232, 1B233.b, 1B234, 1C002.b.3 and b.4, 1C010.a, 1C010.b, 1C010.e.1, 1C202, 1C210, 1C216, 1C225 to 1C237, 1C239 to 1C241 or 1D201.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry, for items controlled for NP reasons.	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E202 "Technology" according to the General Technology Note for the "development" or "production" of goods controlled by 1A202 or 1A225 to 1A227.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E203 "Technology" according to the General Technology Note for the "development" or "production" of "software" controlled by 1D201.

License Requirements

Reason for Control: NP, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E350 "Technology" according to the "General Technology Note" for facilities designed or intended to produce chemicals controlled by 1C350.

License Requirements

Reason for Control: CB, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to entire entry	CB Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E351 "Technology" according to the "General Technology Note" for the disposal of chemicals or microbiological materials controlled by 1C350, 1C351, 1C353, or 1C354.

License Requirements

Reason for Control: CB, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CB applies to "technology" for the disposal of items controlled by 1C351, 1C353, or 1C354	CB Column 1
CB applies to "technology" for the disposal of items controlled by 1C350	CB Column 2
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E355 Technology for the production of Chemical Weapons Convention (CWC) Schedule 2 and 3 chemicals, as follows (see List of Items Controlled):

License Requirements

Reason for Control: CW, AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
CW applies to entire entry.	A license is required for CW reasons to CWC non-States Parties (destinations not listed in Supplement No. 2 to part 745), except for Israel and Taiwan. See §742.18 of the EAR. The Commerce Country Chart is not designed to determine licensing requirements for items controlled for CW reasons.
AT applies to the entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

a. Technology for the production of the following CWC Schedule 2 toxic chemicals:

a.1. PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene (382-21-8);

a.2. [Reserved]

b. Technology for the production of the following CWC Schedule 3 toxic chemicals:

b.1. Phosgene: Carbonyl dichloride (75-44-5);

b.2. Cyanogen chloride (506-77-4);

b.3. Hydrogen cyanide (74-90-8).

1E607 "Technology" "required" for the "development," "production," operation, installation, maintenance, repair, overhaul, or refurbishing of items controlled by ECCN 1A607, 1B607, 1C607, or 1D607 (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry, except "technology" for 1C607.a.10, .a.11, .a.12, and .a.14 and for 1D607 "software" therefor	NS Column 1
RS applies to entire entry	RS Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1E607.

List of Items Controlled

Related Controls: Technical data directly related to defense articles enumerated or otherwise described in USML Category XIV are subject to the ITAR (see 22 CFR § 121.1, Category XIV(m)). Technical data controlled by USML Category XIV(m) include technical data directly related to any equipment containing reagents, algorithms, coefficients, software, libraries, spectral databases, or alarm set point levels developed under U.S. Department of Defense contract or funding for the detection, identification, warning or monitoring of items controlled in paragraphs (a) or (b) of USML Category XIV, or for chemical or biological agents specified by U.S. Department of Defense funding or contract.
Related Definitions: N/A
Items:

a. "Technology" "required" for the "development," "production," operation, installation, maintenance, repair, overhaul, or refurbishing of items controlled by ECCN 1A607, 1B607, 1C607 or 1D607.

Note to 1E607.a: *ECCN 1E607.a includes "technology" "required" exclusively for the incorporation of "biocatalysts" controlled by ECCN 1C607.c.1 into military carrier substances or military material.*

b. [Reserved]

1E608 "Technology" "required" for the "development," "production," operation, installation, maintenance, repair, overhaul, or refurbishing of equipment controlled in 1B608 or materials controlled by 1C608 (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, MT, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry	NS Column 1
RS applies to entire entry	RS Column 1
MT applies to "technology" "required" for 1C608.m	MT Column 1
AT applies to entire entry	AT Column 1
UN applies to entire entry	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 1E608.

List of Items Controlled

Related Controls: (1) Technical data directly related to articles enumerated or otherwise described in USML Categories III, IV, or V are subject to the controls of those USML Categories, respectively.
(2) "Technology" for chlorine trifluoride is controlled under ECCN 1E001 ("development" and "production") and ECCN 1E101 ("use").

Related Definitions: N/A
Items:

a. "Technology" "required" for the "development," "production," operation, installation, maintenance, repair, overhaul, or refurbishing of equipment controlled by ECCN 1B608 or materials controlled by ECCN 1C608.

b. "Technology" "required" for the "development" or "production" of nitrocellulose with nitrogen content over 12.6% and at rates greater than 2000 pounds per hour.

c. "Technology" "required" for the "development" or "production" of nitrate esters (*e.g.*, nitroglycerine) at rates greater than 2000 pounds per hour.

1E613 "Technology" "required" for the "development," "production," operation, installation, maintenance, repair, overhaul, or refurbishing of commodities controlled by 1A613 or 1B613 or "software" controlled by 1D613, as follows (see list of items controlled).

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
NS applies to entire entry except 1E613.y	NS Column 1
RS applies to entire entry except 1E613.y	RS Column 1
RS applies 1E613.y	China, Russia, or Venezuela (see) § 724.6(a)(7))
AT applies to entire entry	AT Column 1
UN applies to entire entry, except 1E613.y	See § 746.1(b) for UN controls

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

Special Conditions for STA

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any "technology" in 1E613.

List of Items Controlled

Related Controls: Technical data directly

related to articles controlled by USML Category X are subject to the control of USML paragraph X(e) of the ITAR.
Related Definitions: N/A
Items:

a. "Technology" (other than "technology" controlled by paragraph .y of this entry) "required" for the "development," "production," operation, installation, maintenance, repair, overhaul, or refurbishing of commodities or "software" controlled by ECCNs 1A613 (except 1A613.y), 1B613 or 1D613 (except 1D613.y).

b. through x. [Reserved]

y. Specific "technology" "required" for the "production," "development," operation, installation, maintenance, repair, overhaul, or refurbishing of commodities or software controlled by ECCN 1A613.y or 1D613.y.

1E994 "Technology" for the "development", "production", or "use" of fibrous and filamentary materials controlled by 1C990.

License Requirements

Reason for Control: AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

1E998 "Technology" for the "development" or "production" of processing equipment controlled by 1B999, and materials controlled by 1C996, 1C997, 1C998, or 1C999.

License Requirements

Reason for Control: AT

Control(s)	*Country Chart (See Supp. No. 1 to part 738)*
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

TSR: N/A

List of Items Controlled

Related Controls: N/A
Related Definitions: N/A
Items:

The list of items controlled is contained in the ECCN heading.

EAR99 Items subject to the EAR that are *not* elsewhere specified in this CCL Category *or* in any other category in the CCL are designated by the number *EAR99*.

ANNEX to Category 1
List of Explosives (See ECCNs 1A004 and 1A008)

1. ADNBF (aminodinitrobenzofuroxan or 7-amino-4,6-dinitrobenzofurazane-1-oxide) (CAS 97096-78-1);

2. BNCP (cis-bis (5-nitrotetrazolato) tetra amine-cobalt (III) perchlorate) (CAS 117412-28-9);

3. CL-14 (diamino dinitrobenzofuroxan or 5,7-diamino-4,6-dinitrobenzofurazane-1-oxide) (CAS 117907-74-1);

4. CL-20 (HNIW or Hexanitrohexaazaisowurtzitane) (CAS 135285-90-4); chlathrates of CL-20;

5. CP (2-(5-cyanotetrazolato) penta amine-cobalt (III) perchlorate) (CAS 70247-32-4);

6. DADE (1,1-diamino-2,2-dinitroethylene, FOX-7) (CAS 145250- 81-3);

7. DATB (diaminotrinitrobenzene) (CAS 1630-08-6);

8. DDFP (1,4-dinitrodifurazanopiperazine);

9. DDPO (2,6-diamino-3,5-dinitropyrazine-1-oxide, PZO) (CAS 194486-77-6);

10. DIPAM (3,3'-diamino-2,2',4,4',6,6'-hexanitrobiphenyl or dipicramide) (CAS 17215-44-0);

11. DNGU (DINGU or dinitroglycoluril) (CAS 55510-04-8);

12. Furazans as follows:

a. DAAOF (diaminoazoxyfurazan);

b. DAAzF (diaminoazofurazan) (CAS 78644-90-3);

13. HMX and derivatives, as follows:

a. HMX (Cyclotetramethylenetetranitramine, octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazine, 1,3,5,7-tetranitro-1,3,5,7-tetraza-cyclooctane, octogen or octogene) (CAS 2691-41-0);

b. difluoroaminated analogs of HMX;

c. K-55 (2,4,6,8-tetranitro-2,4,6,8-tetraazabicyclo [3,3,0]-octanone-3, tetranitrosemiglycouril or keto-bicyclic HMX) (CAS 130256-72-3);

14. HNAD (hexanitroadamantane) (CAS 143850-71-9);

15. HNS (hexanitrostilbene) (CAS 20062-22-0);

16. Imidazoles as follows:

a. BNNII (Octahydro-2,5-bis(nitroimino)imidazo [4,5-d]imidazole);

b. DNI (2,4-dinitroimidazole) (CAS 5213-49-0);

c. FDIA (1-fluoro-2,4-dinitroimidazole);

d. NTDNIA (N-(2-nitrotriazolo)-2,4-dinitroimidazole);

e. PTIA (1-picryl-2,4,5-trinitroimidazole);

17. NTNMH (1-(2-nitrotriazolo)-2-dinitromethylene hydrazine);

18. NTO (ONTA or 3-nitro-1,2,4-triazol-5-one) (CAS 932-64-9);

19. Polynitrocubanes with more than four nitro groups;

20. PYX (2,6-Bis(picrylamino)-3,5-dinitropyridine) (CAS 38082-89-2);

21. RDX and derivatives, as follows:

a. RDX (cyclotrimethylenetrinitramine, cyclonite, T4, hexahydro-1,3,5-trinitro-1,3,5-triazine, 1,3,5-trinitro-1,3,5-triaza-cyclohexane, hexogen or hexogene) (CAS 121-82-4);

b. Keto-RDX (K-6 or 2,4,6-trinitro-2,4,6-triazacyclohexanone) (CAS 115029-35-1);

22. TAGN (triaminoguanidinenitrate) (CAS 4000-16-2);

23. TATB (triaminotrinitrobenzene) (CAS 3058-38-6);

24. TEDDZ (3,3,7,7-tetrabis(difluoroamine) octahydro-1,5-dinitro-1,5-diazocine);

25. Tetrazoles as follows:

a. NTAT (nitrotriazol aminotetrazole);

b. NTNT (1-N-(2-nitrotriazolo)-4-nitrotetrazole);

26. Tetryl (trinitrophenylmethylnitramine) (CAS 479-45-8);

27. TNAD (1,4,5,8-tetranitro-1,4,5,8-tetraazadecalin) (CAS 135877-16-6);

28. TNAZ (1,3,3-trinitroazetidine) (CAS 97645-24-4);

29. TNGU (SORGUYL or tetranitroglycoluril) (CAS 55510-03-7);

30. TNP (1,4,5,8-tetranitro-pyridazino[4,5-d]pyridazine) (CAS 229176-04-9);

31. Triazines as follows:

a. DNAM (2-oxy-4,6-dinitroamino-s-triazine) (CAS 19899-80-0);

b. NNHT (2-nitroimino-5-nitro-hexahydro-1,3,5-triazine) (CAS 130400-13-4);

32. Triazoles as follows:

a. 5-azido-2-nitrotriazole;

b. ADHTDN (4-amino-3,5-dihydrazino-1,2,4-triazole dinitramide) (CAS 1614-08-0);

c. ADNT (1-amino-3,5-dinitro-1,2,4-triazole);

d. BDNTA ((bis-dinitrotriazole)amine);

e. DBT (3,3'-dinitro-5,5-bi-1,2,4-triazole) (CAS 30003-46-4);

f. DNBT (dinitrobistriazole) (CAS 70890-46-9);

g. [Reserved]

h. NTDNT (1-N-(2-nitrotriazolo) 3,5-dinitrotriazole);

i. PDNT (1-picryl-3,5-dinitrotriazole);

j. TACOT (tetranitrobenzotriazolobenzotriazole) (CAS 25243-36-1);

33. "Explosives" not listed elsewhere in this list having a detonation velocity exceeding 8,700 m/s, at maximum density, or a detonation pressure exceeding 34 GPa (340 kbar);

34. [Reserved]

35. Nitrocellulose (containing more than 12.5% nitrogen) (CAS 9004-70-0);

36. Nitroglycol (CAS 628-96-6);

37. Pentaerythritol tetranitrate (PETN) (CAS 78-11-5);

38. Picryl chloride (CAS 88-88-0);

39. 2,4,6 Trinitrotoluene (TNT) (CAS 118-96-7);

40. Nitroglycerine (NG) (CAS 55-63-0);

41. Triacetone Triperoxide (TATP) (CAS 17088-37-8);

42. Guanidine nitrate (CAS 506-93-4);

43. Nitroguanidine (NQ) (CAS 556-88-7);

44. DNAN (2,4-dinitroanisole) (CAS 119-27-7);

45. TEX (4,10-Dinitro-2,6,8,12-tetraoxa-4,10-diazaisowurtzitane);

46. GUDN (Guanylurea dinitramide) FOX-12 (CAS 217464-38-5);

47. Tetrazines as follows:

a. BTAT (Bis(2,2,2-trinitroethyl)-3,6-diaminotetrazine);

b. LAX-112 (3,6-diamino-1,2,4,5-tetrazine-1,4-dioxide);

48. Energetic ionic materials melting between 343 K (70°C) and 373 K (100°C) and with detonation velocity exceeding 6,800 m/s or detonation pressure exceeding 18 GPa (180 kbar);

49. BTNEN (Bis(2,2,2-trinitroethyl)-nitramine) (CAS 19836-28-3);

50. FTDO (5,6-(3',4'-furazano)- 1,2,3,4-tetrazine-1,3-dioxide).