CATEGORY 1—SPECIAL MATERIALS AND RELATED EQUIPMENT

(L.N. 226 of 2009)

1A SYSTEMS, EQUIPMENT AND COMPONENTS

1A001 Components made from fluorinated compounds, as follows: *(L.N. 65 of 2004)*

(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 specified by 1C009(b) or 1C009(c);

(b)-(c) *(Repealed L.N. 89 of 2021)*

(L.N. 161 of 2011)

1A002 "Composite" structures or laminates, as follows: *(L.N. 89 of 2021)*

N.B.:

See also 1A202, 9A010 and 9A110.

(a) Made from any of the following:

(1) An organic "matrix" and "fibrous or filamentary materials" specified in 1C010(c) or 1C010(d);

(2) Prepregs or preforms specified in 1C010(e); *(L.N. 89 of 2021)*

(b) Made from a metal or carbon "matrix", and any of the following: *(L.N. 89 of 2021)*

(1) Carbon "fibrous or filamentary materials" having:

(a) A "specific modulus" exceeding 10.15×10^6 m; *and*

(b) A "specific tensile strength" exceeding 17.7×10^4 m;

(2) Materials specified in 1C010(c); *(L.N. 254 of 2008)*

Notes:

1. 1A002 does not apply to "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: *(L.N. 89 of 2021)*

(a) An area not exceeding 1 m^2;

(b) A length not exceeding 2.5 m;

(c) A width exceeding 15 mm. *(L.N. 161 of 2011)*

2. 1A002 does not apply to semi-finished items, specially designed for purely civilian applications as follows: *(L.N. 161 of 2011)*

(a) Sporting goods;

(b) Automotive industry;

(c) Machine tool industry; *and*

(d) Medical applications. *(L.N. 254 of 2008)*

3. 1A002(b)(1) does not apply to semi-finished items that contain a maximum of two dimensions of interwoven filaments and are specially designed for applications as follows: *(L.N. 161 of 2011)*

(a) Metal heat-treatment furnaces for tempering metals; *and*

(b) Silicon boule production equipment. *(L.N. 226 of 2009)*

4. 1A002 does not apply to finished items specially designed for a specific application. *(L.N. 161 of 2011)*

1A003 Manufactures of non-"fusible" aromatic polyimides in film, sheet, tape or ribbon form having any of the following: *(L.N. 226 of 2009)*

(a) With a thickness exceeding 0.254 mm; *or*

(b) Coated or laminated with carbon, graphite, metals or magnetic substances;

Note:

1A003 does not control manufactures when coated or laminated with copper and designed for the production of electronic printed circuit boards.

N.B.:

For "fusible" aromatic polyimides in any form, see 1C008(a)(3). *(L.N. 226 of 2009)*

1A004 Protective and detection equipment and components, not specially designed for military use, as follows:

N.B.:

See also the Munitions List, 2B351 and 2B352. *(L.N. 42 of 2017)*

(a) Full face masks, filter canisters and decontamination equipment for such masks and canisters, designed or modified for defence against any of the following, and specially designed components for such masks, canisters and equipment: *(L.N. 42 of 2017)*

Note:

1A004(a) includes Powered Air Purifying Respirators (PAPR) that are designed or modified for defence against agents or materials, listed in 1A004(a). *(L.N. 89 of 2013)*

Technical Note:

For the purposes of 1A004(a):

(a) Full face masks are also known as gas masks;

(b) Filter canisters include filter cartridges. *(L.N. 42 of 2017)*

(1) "Biological agents"; *(L.N. 89 of 2021)*

(2) 'Radioactive materials'; *(L.N. 89 of 2021)*

(3) Chemical warfare (CW) agents;

(4) "Riot control agents", including:

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

(b) [(2-chlorophenyl) methylene] propanedinitrile, (o-Chlorobenzylidenemalononitrile) (CS) (CAS 2698-41-1); *(L.N. 42 of 2017)*

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

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

(e) 10-Chloro-5,10-dihydrophenarsazine, (Phenarsazine chloride), (Adamsite), (DM) (CAS 578-94-9); *(L.N. 42 of 2017)*

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

(b) Protective suits, gloves and shoes specially designed or modified for defence against any of the following:

(1) "Biological agents"; *(L.N. 89 of 2021)*

(2) 'Radioactive materials'; *(L.N. 89 of 2021)*

(3) Chemical warfare (CW) agents; *(L.N. 226 of 2009)*

(c) Detection systems, specially designed or modified for detection or identification of any of the following, and specially designed components for those systems: *(L.N. 161 of 2011)*

(1) "Biological agents"; *(L.N. 89 of 2021)*

(2) 'Radioactive materials'; *(L.N. 89 of 2021)*

(3) Chemical warfare (CW) agents; *and (L.N. 226 of 2009)*

(d) Electronic equipment designed for automatically detecting or identifying the presence of "explosives" residues and utilizing 'trace detection' techniques (e.g. surface acoustic wave, ion mobility spectrometry, differential mobility spectrometry and mass spectrometry);

Technical Note:

The term 'trace detection' means the capability to detect less than 1 ppm vapour, or 1 mg solid or liquid.

Notes:

1. 1A004(d) does not include equipment specially designed for laboratory use.
2. 1A004(d) does not include non-contact walk-through security portals. *(L.N. 226 of 2009)*

Note:

1A004 does not include:

(a) Personal radiation monitoring dosimeters; *and*

(b) Occupational health or safety equipment limited by design or function to protect against hazards specific to residential safety or civil industries, including: *(L.N. 42 of 2017)*

(1) Mining;

(2) Quarrying;

(3) Agriculture;

(4) Pharmaceutical;

(5) Medical;

(6) Veterinary;

(7) Environmental;

(8) Waste management;

(9) Food industry. *(L.N. 161 of 2011)*

Technical Notes:

1. 1A004 includes equipment and components that have been identified, successfully tested to national standards or otherwise proven effective, for the detection of or defence 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 in the food industry. *(L.N. 89 of 2021)*

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. *(L.N. 89 of 2021)*

(L.N. 254 of 2008)

1A005 Body armour and its components, as follows:

(a) Soft body armour not manufactured according to military standards or specifications, or to their equivalents, and its specially designed components;

(b) Hard body armour plates providing ballistic protection equal to or less than level IIIA (NIJ 0101.06, July 2008) or national equivalents;

N.B.:

1. For "fibrous or filamentary materials" used in the manufacture of body armour, see 1C010.

2. For body armour manufactured according to military standards or specifications, see ML13(d).

Notes:

1. 1A005 does not apply to body armour when accompanying its user for the user's own personal protection.

2. 1A005 does not apply to body armour designed to provide frontal protection only from both fragment and blast from non-military explosive devices.

3. 1A005 does not apply to body armour designed to provide protection only from knife, spike, needle or blunt trauma.

(L.N. 89 of 2013)

1A006 Equipment, specially designed or modified for the disposal of improvised explosive devices, as follows, and specially designed components and accessories for those equipment:

(a) Remotely operated vehicles; *and*

(b) 'Disruptors';

Technical Note:

'Disruptors': devices specially designed for the purpose of preventing the operation of an explosive device by projecting a liquid, solid or frangible projectile.

N.B.:

For equipment specially designed for military use for the disposal of improvised explosive devices, see also ML4.

Note:

1A006 does not include equipment when accompanying its operator.

(L.N. 254 of 2008)

1A007 Equipment and devices, specially designed to initiate charges, and devices containing energetic materials, by electrical means, as follows:

(a) Explosive detonator firing sets designed to drive explosive detonators specified in 1A007(b); *and*

(b) Electrically driven explosive detonators, as follows:

(1) Exploding bridge (EB);

(2) Exploding bridge wire (EBW);

(3) Slapper; *and*

(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. Also, the word initiator is sometimes used in place of the word detonator.

N.B.:

For equipment and devices specially designed for military use, see the Munitions List. See also 3A229 and 3A232. *(L.N. 226 of 2009)*

(L.N. 254 of 2008)

1A008 Charges, devices and components, as follows:

(a) 'Shaped charges' having all of the following:

(1) Net Explosive Quantity (NEQ) greater than 90 g;

(2) Outer casing diameter equal to or greater than 75mm;

(b) Linear shaped cutting charges having all of the following, and specially designed components for those cutting charges:

(1) An explosive load greater than 40 g/m;

(2) A width of 10 mm or more;

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

(d) Cutters, other than those specified in 1A008(b), and severing tools, together having a Net Explosive Quantity (NEQ) greater than 3.5 kg;

Technical Note:

The term 'shaped charges' means explosive charges shaped to focus the effects of the explosive blast.

(L.N. 226 of 2009)

1A102 Resaturated pyrolized carbon-carbon components designed for space launch vehicles controlled by 9A004 or sounding rockets controlled by 9A104;

(L.N. 132 of 2001; L.N. 95 of 2006)

1A202 Composite structures, other than those controlled by 1A002, in the form of tubes and having both of the following characteristics: *(L.N. 95 of 2006)*

N.B.:

See also 9A010 and 9A110.

(a) An inside diameter of between 75 mm and 400 mm; *and*

(b) Made with any of the "fibrous or filamentary materials" controlled by 1C010(a) or 1C010(b) or 1C210(a) or with carbon prepreg materials controlled by 1C210(c); *(L.N. 95 of 2006)*

(L.N. 65 of 2004)

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;

1A226 Specialized packings which may be used in separating heavy water from ordinary water, having both of the following characteristics:

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

(b) Designed to be used in vacuum distillation towers; *(L.N. 132 of 2001)*

1A227 High-density (lead glass or other) radiation shielding windows, having all of the following characteristics, and specially designed frames therefor:

(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;

Technical Note:

In 1A227, the term 'cold area' means the viewing area of the window exposed to the lowest level of radiation in the design application. *(L.N. 132 of 2001)*

1B TEST, INSPECTION AND PRODUCTION EQUIPMENT

1B001 Equipment for the production or inspection of "composite" structures or laminates specified by 1A002 or "fibrous or filamentary materials" specified by 1C010, as follows, and specially designed components and accessories therefor: *(L.N. 161 of 2011)*

N.B.:

See also 1B101 and 1B201.

(a) Filament winding machines, of which the motions for positioning, wrapping and winding fibres 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"; *(L.N. 161 of 2011)*

(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; *(L.N. 161 of 2011; L.N. 42 of 2017)*

Note:

In 1B001(b), 'missile' means complete rocket systems and unmanned aerial vehicle systems. *(L.N. 254 of 2008)*

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 equal to or less than 304.8 mm, and to cut and restart individual 'filament band' courses during the laying process. *(L.N. 42 of 2017; L.N. 89 of 2021)*

(c) Multidirectional, multidimensional weaving machines or interlacing machines, including adapters and modification kits, specially designed or modified for weaving, interlacing or braiding fibres to manufacture "composite" structures;

Technical Note:

For the purpose of 1B001(c) the technique of interlacing includes knitting. *(L.N. 65 of 2004; L.N. 161 of 2011)*

(d) Equipment specially designed or adapted for the production of reinforcement fibres, as follows:

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

(2) Equipment for the chemical vapour deposition of elements or compounds on heated filamentary substrates to manufacture silicon carbide fibres;

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

(4) Equipment for converting aluminium containing precursor fibres into alumina fibres 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:

(1) X-ray tomography systems for three dimensional defect inspection; *and*

(2) Numerically controlled ultrasonic testing machines of which the motions for positioning transmitters or receivers or both are simultaneously coordinated and programmed in four or more axes to follow the three dimensional contours of the component under inspection; *(L.N. 254 of 2008)*

(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; *(L.N. 161 of 2011; L.N. 42 of 2017)*

Technical Note:

For the purposes of 1B001(g), 'tow-placement machines' have the ability to place one or more 'filament bands' having widths equal to or less than 25.4 mm, and to cut and restart individual 'filament band' courses during the placement process. *(L.N. 42 of 2017; L.N. 89 of 2021)*

Technical Notes: (L.N. 42 of 2017)

1. For the purposes 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. *(L.N. 161 of 2011; L.N. 42 of 2017)*
2. For the purposes of 1B001, 'filament band' is a single continuous width of fully or partially resin-impregnated "tape", "tow" or fibre. Fully or partially resin-impregnated 'filament bands' include those coated with dry powder that tacks on heating. *(L.N. 42 of 2017; L.N. 89 of 2021)*

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); *(L.N. 132 of 2001)*

N.B.:
See also 1B102. *(L.N. 65 of 2004)*

1B003 Tools, dies, moulds or fixtures, for "superplastic forming" or "diffusion bonding" titanium or aluminium or their alloys, specially designed for the manufacture of:

(a) Airframe or aerospace structures;

(b) "Aircraft" or aerospace engines; *or*

(c) Specially designed components for structures specified in 1B003(a) or for engines specified in 1B003(b); *(L.N. 226 of 2009)*

1B101 Equipment, other than that controlled by 1B001, for the "production" of structural composites as follows; and specially designed components and accessories therefor:

N.B.:

See also 1B201.

Note:

Components and accessories controlled by 1B101 include moulds, mandrels, dies, fixtures and tooling for the preform pressing, curing, casting, sintering or bonding of composite structures, laminates and manufactures thereof.

(a) Filament winding machines or fibre placement machines, of which the motions for positioning, wrapping and winding fibres 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; *(L.N. 226 of 2009)*

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

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

(1) Equipment for converting polymeric fibres (such as polyacrylonitrile, rayon or polycarbosilane) including special provision to strain the fibre during heating;

(2) Equipment for the vapour deposition of elements or compounds on heated filament substrates; *and*

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

(d) Equipment designed or modified for special fibre surface treatment or for producing prepregs and preforms controlled by 9C110; *(L.N. 65 of 2004)*

Note:

Equipment covered in 1B101(d) includes rollers, tension stretchers, coating equipment, cutting equipment and clicker dies.

1B102 Metal powder "production equipment", other than that controlled by 1B002, and components as follows: *(L.N. 95 of 2006)*

N.B.:

See also 1B115(b).

(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 in the Munitions List; *(L.N. 42 of 2017)*

(b) Specially designed components for "production equipment" controlled by 1B002 or 1B102(a); *(L.N. 95 of 2006)*

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 aluminium powders by powdering a melt in an inert medium (e.g. nitrogen).

(L.N. 65 of 2004)

1B115 Equipment, other than that controlled by 1B002 or 1B102, for the "production" of propellants or propellant constituents, as follows, and specially designed components therefor: *(L.N. 95 of 2006)*

(a) "Production equipment" for the "production", handling or acceptance testing of liquid propellants or propellant constituents controlled by 1C011(a), 1C011(b), 1C111 or in the Munitions List;

(b) "Production equipment" for the "production", handling, mixing, curing, casting, pressing, machining, extruding or acceptance testing of solid propellants or propellant constituents controlled by 1C011(a), 1C011(b), 1C111 or in the Munitions List; *(L.N. 95 of 2006)*

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.

Notes:

1. For equipment specially designed for the production of military goods, see the Munitions List.
2. 1B115 does not control equipment for the "production", handling and acceptance testing of boron carbide.

(L.N. 65 of 2004)

1B116 Specially designed nozzles for producing pyrolitically derived materials formed on a mould, 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;

1B117 Batch mixers with provision for mixing under vacuum in the range of zero to 13.326 kPa and with temperature control capability of the mixing chamber and having all of the following, and specially designed components therefor:

(a) A total volumetric capacity of 110 litres or more; *and*

(b) At least one 'mixing or kneading shaft' mounted off centre; *(L.N. 42 of 2017)*

Note:

In 1B117(b), the term 'mixing or kneading shaft' does not refer to deagglomerators or knife-spindles. *(L.N. 42 of 2017)*

(L.N. 65 of 2004)

1B118 Continuous mixers with provision for mixing under vacuum in the range of zero to 13.326 kPa and with temperature control capability of the mixing chamber and having any of the following, and specially designed components therefor:

(a) Two or more mixing or kneading shafts; or

(b) A single rotating shaft which oscillates and having kneading teeth/pins on the shaft as well as inside the casing of the mixing chamber;

(L.N. 65 of 2004)

1B119 Fluid energy mills usable for grinding or milling substances controlled by 1C011(a), 1C011(b), 1C111 or in the Munitions List, and specially designed components therefor;

(L.N. 65 of 2004; L.N. 95 of 2006)

1B201 Filament winding machines, other than those controlled by 1B001 or 1B101, and related equipment, as follows: *(L.N. 95 of 2006)*

(a) Filament winding machines having all of the following characteristics:

(1) Having motions for positioning, wrapping, and winding fibres coordinated and programmed in two or more axes;

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

(3) Capable of winding cylindrical tubes with an internal diameter of between 75 mm and 650 mm and lengths of 300 mm or greater; *(L.N. 42 of 2017)*

(b) Coordinating and programming controls for the filament winding machines controlled by 1B201(a);

(c) Precision mandrels for the filament winding machines controlled by 1B201(a); *(L.N. 132 of 2001; L.N. 95 of 2006)*

1B225 Electrolytic cells for fluorine production with an output capacity greater than 250 g of fluorine per hour;

(L.N. 65 of 2004)

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;

Note:

1B226 includes separators:

(a) Capable of enriching stable isotopes;

(b) With the ion sources and collectors both in the magnetic field and those configurations in which they are external to the field.

1B227 *(Repealed L.N. 42 of 2017)*

1B228 Hydrogen-cryogenic distillation columns having all of the following characteristics:

(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; *(L.N. 65 of 2004)*

(c) Constructed of either:

(1) Stainless steel of the Society of Automotive Engineers International (SAE) 300 series with low sulphur content and with an austenitic ASTM (or equivalent standard) grain size number of 5 or greater; *or (L.N. 89 of 2021)*

(2) Equivalent materials which are both cryogenic and H_2-compatible; *and (L.N. 132 of 2001)*

(d) With internal diameters of 30 cm or greater and 'effective lengths' of 4 m or greater; *(L.N. 42 of 2017)*

Technical Note:

In 1B228(d), 'effective length' 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. *(L.N. 42 of 2017)*

1B229 *(Repealed L.N. 89 of 2021)*

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:

(a) Airtight (i.e. hermetically sealed); *(E.R. 6 of 2020)*

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

(c) Either of the following characteristics:

(1) For concentrated potassium amide solutions (1% or greater), an operating pressure of 1.5 to 60 MPa; *or*

(2) For dilute potassium amide solutions (less than 1%), an operating pressure of 20 to 60 MPa;

(L.N. 65 of 2004)

1B231 Tritium facilities or plants, and equipment therefor, as follows: *(L.N. 65 of 2004)*

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

(b) Equipment for tritium facilities or plant, as follows:

(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*

(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:

(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;

(L.N. 65 of 2004)

1B233 Lithium isotope separation facilities or plants, and systems and equipment therefor, as follows: *(L.N. 65 of 2004; L.N. 42 of 2017)*

(a) Facilities or plants for the separation of lithium isotopes; *(L.N. 42 of 2017)*

(b) Equipment for the separation of lithium isotopes based on the lithium-mercury amalgam process, as follows: *(L.N. 42 of 2017)*

(1) Packed liquid-liquid exchange columns specially designed for lithium amalgams;

(2) Mercury or lithium amalgam pumps; *(L.N. 65 of 2004)*

(3) Lithium amalgam electrolysis cells;

(4) Evaporators for concentrated lithium hydroxide solution;

(c) Ion exchange systems specially designed for lithium isotope separation, and specially designed components for such systems; *(L.N. 42 of 2017)*

(d) Chemical exchange systems (employing crown ethers, cryptands, or lariat ethers), specially designed for lithium isotope separation, and specially designed components for such systems; *(L.N. 42 of 2017)*

1B234 High explosive containment vessels, chambers, containers and other similar containment devices designed for the testing of high explosives or explosive devices that meet all of the following descriptions:

N.B.:

See also the Munitions List.

(a) Designed to fully contain an explosion equivalent to 2 kg of trinitrotoluene (TNT) or greater; *(L.N. 89 of 2021)*

(b) Having design elements or features enabling real time or delayed transfer of diagnostic or measurement information;

(L.N. 42 of 2017)

1B235 Target assemblies and components for the production of tritium as follows:

(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 1B235(a);

Technical Note:

Components specially designed for target assemblies for the production of tritium may include lithium pellets, tritium getters, and specially-coated cladding.

(L.N. 89 of 2021)

1C MATERIALS

Technical Note:

Metals and alloys:

Unless provision to the contrary is made, the words 'metals' and 'alloys' in 1C001 to 1C012 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; *(L.N. 65 of 2004)*

(b) Cast material produced by casting in sand, die, metal, plaster or other types of moulds, 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 use as absorbers of electromagnetic waves, or intrinsically conductive polymers, as follows:

N.B.:

See also 1C101.

(a) Materials for absorbing frequencies exceeding 2×10^8 Hz but less than 3×10^{12} Hz;

Notes:

1. 1C001(a) does not control:
   (a) Hair type absorbers, constructed of natural or synthetic fibres, 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 characteristics:
      (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 $\pm$15% of the centre 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 $\pm$15% of the centre 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 centre frequency on a side and positioned in the far field of the radiating element.

      (2) Tensile strength less than 7×10^6 N/m^2; *and*
      (3) Compressive strength less than 14×10^6 N/m^2;
   (d) Planar absorbers made of sintered ferrite, having:
      (1) A specific gravity exceeding 4.4; *and*
      (2) A maximum operating temperature of 548 K (275°C).
2. Nothing in Note 1 releases magnetic materials to provide absorption when contained in paint. *(L.N. 132 of 2001)*

(b) Materials for absorbing frequencies exceeding 1.5×10^{14} Hz but less than 3.7×10^{14} Hz and not transparent to visible light;

Note:

1C001(b) does not control materials that are specially designed or formulated for any of the following applications:

(a) Laser marking of polymers;

(b) Laser welding of polymers. *(L.N. 42 of 2017)*

(c) Intrinsically conductive polymeric materials with a 'bulk electrical conductivity' exceeding 10 000 S/m (Siemens per metre) or a 'sheet (surface) resistivity' of less than 100 ohms/square, based on any of the following polymers: *(L.N. 95 of 2006)*

(1) Polyaniline;

(2) Polypyrrole;

(3) Polythiophene;

(4) Poly phenylene-vinylene; *or*

(5) Poly thienylene-vinylene;

Note:

1C001(c) does not control materials in a liquid form. *(L.N. 42 of 2017)*

Technical Note:

'Bulk electrical conductivity' and 'sheet (surface) resistivity' should be determined using ASTM D-257 or national equivalents. *(L.N. 95 of 2006)*

1C002 Metal alloys, metal alloy powder and alloyed materials, as follows:

N.B.:

See also 1C202.

Note:

1C002 does not control metal alloys, metal alloy powder and alloyed materials for coating substrates.

Technical Notes:

1. The metal alloys in 1C002 are those containing a higher percentage by weight of the stated metal than of any other element.
2. Stress-rupture life should be measured in accordance with ASTM standard E-139 or national equivalents.
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:

(1) Nickel aluminides containing a minimum of 15 weight percent aluminium, a maximum of 38 weight percent aluminium and at least one additional alloying element;

(2) Titanium aluminides containing 10 weight percent or more aluminium and at least one additional alloying element;

(b) Metal alloys, as follows, made from the powder or particulate material specified by 1C002(c): *(L.N. 161 of 2011)*

(1) Nickel alloys with:

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

(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;

(2) Niobium alloys with:

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

(3) Titanium alloys with:

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

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

(4) Aluminium alloys with a tensile strength of:

(a) 240 MPa or more at 473 K (200°C); *or*

(b) 415 MPa or more at 298 K (25°C);

(5) Magnesium alloys with:

(a) A tensile strength of 345 MPa or more; *and*

(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 characteristics:

(1) Made from any of the following composition systems:

Technical Note:

X in the following equals one or more alloying elements.

(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;

(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) Titanium alloys (Ti-Al-X or Ti-X-Al);

(d) Aluminium alloys (Al-Mg-X or Al-X-Mg, Al-Zn-X or Al-X-Zn, Al-Fe-X or Al-X-Fe); *or*

(e) Magnesium alloys (Mg-Al-X or Mg-X-Al);

(2) Made in a controlled environment by any of the following processes:

(a) "Vacuum atomization"; *(L.N. 65 of 2004)*

(b) "Gas atomization"; *(L.N. 65 of 2004)*

(c) "Rotary atomization"; *(L.N. 65 of 2004)*

(d) "Splat quenching";

(e) "Melt spinning" and "comminution";

(f) "Melt extraction" and "comminution"; *(L.N. 42 of 2017)*

(g) "Mechanical alloying"; *(L.N. 42 of 2017)*

(h) "Plasma atomization"; *(L.N. 42 of 2017)*

(3) Capable of forming materials controlled by 1C002(a) or 1C002(b);

(d) Alloyed materials, having all of the following characteristics:

(1) Made from any of the composition systems specified in 1C002(c)(1);

(2) In the form of uncomminuted flakes, ribbons or thin rods; *and*

(3) Produced in a controlled environment by any of the following:

(a) "Splat quenching";

(b) "Melt spinning"; *or*

(c) "Melt extraction"; *(L.N. 132 of 2001)*

1C003 Magnetic metals, of all types and of whatever form, having any of the following characteristics:

(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. *(L.N. 161 of 2011)*

(b) Magnetostrictive alloys, having any of the following characteristics:

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

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

(c) Amorphous or 'nanocrystalline' alloy strips, having all of the following characteristics: *(L.N. 89 of 2021)*

(1) A composition having a minimum of 75 weight percent of iron, cobalt or nickel;

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

(3) Any of the following:

(a) A strip thickness of 0.02 mm or less; *or*

(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:

(a) A density exceeding 17.5 g/cm^3;

(b) An elastic limit exceeding 880 MPa; *(L.N. 132 of 2001)*

(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:

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

(1) Embedded in a "matrix" other than a copper or copper-based mixed "matrix";

(2) Having a cross-section area less than 0.28×10^{-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 characteristics:

(1) A "critical temperature" at zero magnetic induction exceeding 9.85 K (-263.31°C);

(2) Remaining in the "superconductive" state at a temperature of 4.2 K (-268.96°C) 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 1 750 A/mm^2 on overall cross-section of the conductor; *and*

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

Technical Note:

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

(L.N. 254 of 2008)

1C006 Fluids and lubricating materials, as follows:

(a) *(Repealed L.N. 89 of 2021)*

(b) Lubricating materials containing, as their principal ingredients, any of the following compounds or materials:

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

(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:

(1) Purity exceeding 99.8%;

(2) Containing less than 25 particles of 200 μm or larger in size per 100 ml;

(3) Made from at least 85% of any of the following:

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

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

(c) Polybromotrifluoroethylene; *(L.N. 161 of 2011)*

(d) Fluorocarbon electronic cooling fluids, having all of the following characteristics:

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

(a) Monomeric forms of perfluoropolyalkylether-triazines or perfluoroaliphatic-ethers;

(b) Perfluoroalkylamines;

(c) Perfluorocyclocalkanes; *or*

(d) Perfluoroalkanes;

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

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

(4) Containing 60% or more by weight of fluorine;

Note:

1C006(d) does not apply to materials specified and packaged as medical products. *(L.N. 89 of 2013)*

Technical Note:

(Repealed L.N. 89 of 2021)

1C007 Ceramic powders, ceramic-"matrix" "composite" materials and 'precursor materials', as follows: *(L.N. 42 of 2017; L.N. 89 of 2021)*

N.B.:

See also 1C107.

(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; *(L.N. 42 of 2017; L.N. 89 of 2021)*

(b) *(Repealed L.N. 89 of 2021)*

(c) Ceramic-"matrix" "composite" materials as follows:

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

(a) Continuous fibres made from any of the following materials:

(1) Al_2O_3 (CAS 1344-28-1);

(2) Si-C-N;

Note:

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

(b) Fibres being all of the following:

(1) Made from any of the following materials:

(a) Si-N;

(b) Si-C;

(c) Si-Al-O-N;

(d) Si-O-N;

(2) Having a "specific tensile strength" exceeding 12.7×10^3 m;

(2) Ceramic-"matrix" "composite" materials, with a "matrix" formed of carbides or nitrides of silicon, zirconium or boron; *(L.N. 89 of 2021)*

(d) *(Repealed L.N. 89 of 2021)*

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

(1) Polydiorganosilanes;

(2) Polysilazanes;

(3) Polycarbosilazanes; *(L.N. 89 of 2021)*

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. *(L.N. 89 of 2021)*

(f) *(Repealed L.N. 89 of 2021)*

1C008 Non-fluorinated polymeric substances, as follows:

(a) Imides as follows: *(L.N. 161 of 2011)*

(1) Bismaleimides; *(L.N. 161 of 2011)*

(2) Aromatic polyamide-imides (PAI) having a 'glass transition temperature (T_g)' exceeding 563 K (290°C); *(L.N. 161 of 2011)*

(3) Aromatic polyimides having a 'glass transition temperature (T_g)' exceeding 505 K (232°C); *(L.N. 42 of 2017)*

(4) Aromatic polyetherimides having a 'glass transition temperature (T_g)' exceeding 563 K (290°C); *(L.N. 89 of 2013)*

Note:

1C008(a) controls substances in liquid or solid "fusible" form, including resin, powder, pellet, film, sheet, tape or ribbon. *(L.N. 226 of 2009; L.N. 42 of 2017)*

N.B.:

For non-"fusible" aromatic polyimides in film, sheet, tape or ribbon form, see 1A003. *(L.N. 226 of 2009)*

(b) *(Repealed L.N. 42 of 2017)*

(c) *(Repealed L.N. 254 of 2008)*

(d) Polyarylene ketones;

(e) Polyarylene sulphides, where the arylene group is biphenylene, triphenylene or combinations thereof;

(f) Polybiphenylenethersulphone having a 'glass transition temperature (T_g)' exceeding 563 K (290°C); *(L.N. 89 of 2013)*

Technical Notes:

1. The 'glass transition temperature (T_g)' 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. *(L.N. 89 of 2021)*
2. The 'glass transition temperature (T_g)' 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 that has attained a minimum of 90% degree of cure as defined 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 T_g. *(L.N. 42 of 2017)*

1C009 Unprocessed fluorinated compounds, as follows:

(a) *(Repealed L.N. 89 of 2021)*

(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:

N.B.:

See also 1C210 and 9C110. *(L.N. 254 of 2008)*

Technical Notes:

1. In calculating the "specific modulus", "specific tensile strength" or specific weight of "fibrous or filamentary materials" for the purposes of 1C010(a), 1C010(b), 1C010(c) or 1C010(e)(1)(b), the modulus or tensile strength is to be determined using Method A described in ISO 10618 (2004) or national equivalents.
2. The assessment of "specific modulus", "specific tensile strength" or specific weight of non-unidirectional "fibrous or filamentary materials" (for example, fabrics, random mats or braids) under 1C010 is to be based on the mechanical properties of the constituent unidirectional monofilaments (for example, monofilaments, yarns, rovings or tows) prior to processing into the non-unidirectional "fibrous or filamentary materials". *(L.N. 42 of 2017)*

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

(1) "Specific modulus" exceeding 12.7×10^6 m; *and*

(2) "Specific tensile strength" exceeding 23.5×10^4 m;

Note:

1C010(a) does not apply to polyethylene.

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

(1) "Specific modulus" exceeding 14.65×10^6 m; *and* *(L.N. 161 of 2011)*

(2) "Specific tensile strength" exceeding 26.82×10^4 m; *(L.N. 161 of 2011)*

Technical Note:

(Repealed L.N. 42 of 2017)

Note:

1C010(b) does not apply to:

1. "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.
2. Mechanically chopped, milled or cut carbon "fibrous or filamentary materials" 25.0 mm or less in length. *(L.N. 161 of 2011)*

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

(1) "Specific modulus" exceeding 2.54×10^6 m; *and*

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

Note:

1C010(c) does not apply to:

1. Discontinuous, multiphase, polycrystalline alumina fibres in chopped fibre or random mat form, containing 3% by weight or more silica, with a "specific modulus" of less than 10×10^6 m. *(L.N. 89 of 2021)*
2. Molybdenum and molybdenum alloy fibres.
3. Boron fibres.
4. Discontinuous ceramic fibres with a melting, softening, decomposition or sublimation point lower than 2 043 K (1 770°C) in an inert environment.

(d) "Fibrous or filamentary materials":

(1) Composed of any of the following:

(a) Polyetherimides specified by 1C008(a); *or*

(b) Materials specified by 1C008(d), 1C008(e) and 1C008(f); *or (L.N. 42 of 2017)*

(2) Composed of materials specified by 1C010(d)(1)(a) or 1C010(d)(1)(b) and "commingled" with other fibres specified by 1C010(a), 1C010(b) or 1C010(c); *(L.N. 65 of 2004)*

(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 fibre preforms", having all of the following:

(1) Any of the following:

(a) Inorganic "fibrous or filamentary materials" specified by 1C010(c);

(b) Organic or carbon "fibrous or filamentary materials", having all of the following:

(1) "Specific modulus" exceeding 10.15×10^6 m; *and*

(2) "Specific tensile strength" exceeding 17.7×10^4 m; *and*

(2) Any of the following:

(a) Resin or pitch specified by 1C008 or 1C009(b);

(b) 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' equal to or exceeding 453 K (180°C) and having a phenolic resin;

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

Notes:

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

The 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' for materials specified 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. *(L.N. 161 of 2011)*

(L.N. 161 of 2011)

1C011 Metals and compounds, as follows:

N.B.:

See ML8(c)(5)(b) for metal powders mixed with other substances to form a mixture formulated for military purposes. See also 1C111. *(L.N. 161 of 2011)*

(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 of these: *(L.N. 65 of 2004)*

Technical Note:

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

Note:

The metals or alloys listed in 1C011(a) are controlled whether or not the metals or alloys are encapsulated in aluminium, magnesium, zirconium or beryllium. *(L.N. 132 of 2001)*

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

(1) Boron with a purity of 85% by weight or more;

(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 aluminium, magnesium, zirconium or beryllium. *(L.N. 161 of 2011)*

(c) Guanidine nitrate (CAS 506-93-4); *(L.N. 161 of 2011)*

(d) Nitroguanidine (NQ) (CAS 556-88-7); *(L.N. 132 of 2001)*

1C012 Materials as follows: *(L.N. 132 of 2001)*

Technical Note:

These materials are typically used for nuclear heat sources. *(L.N. 132 of 2001)*

(a) Plutonium in any form with a plutonium isotopic assay of plutonium-238 of more than 50% by weight;

Note:

1C012(a) does not control:

(1) Shipments with a plutonium content of 1 g or less;

(2) Shipments of 3 "effective grams" or less when contained in a sensing component in instruments. *(L.N. 132 of 2001)*

(b) "Previously separated" neptunium-237 in any form;

Note:

1C012(b) does not control shipments with a neptunium-237 content of 1 g or less.

1C101 Materials and devices for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures, other than those controlled by 1C001, usable in 'missiles', 'missile' subsystems or "unmanned aerial vehicles" specified in 9A012 or 9A112(a); *(L.N. 95 of 2006; L.N. 42 of 2017)*

Notes:

1. 1C101 includes:
   (a) Structural materials and coatings specially designed for reduced radar reflectivity;
   (b) Coatings, including paints, specially designed for reduced or tailored reflectivity or emissivity in the microwave, infra red or ultra violet regions of the electromagnetic spectrum.
2. 1C101 does not include coatings when specially used for the thermal control of satellites.

   Technical Note:

   In 1C101, 'missiles' means complete rocket systems and "unmanned aerial vehicle" systems capable of a range exceeding 300 km. *(L.N. 95 of 2006)*

1C102 Resaturated pyrolized carbon-carbon materials designed for space launch vehicles controlled by 9A004 or sounding rockets controlled by 9A104;

(L.N. 132 of 2001; L.N. 95 of 2006)

1C107 Graphite and ceramic materials, other than those controlled by 1C007, as follows: *(L.N. 95 of 2006)*

(a) Fine grain graphites with a bulk density of at least 1.72 g/cc measured at 15°C and having a grain size of 100×10^{-6}m (100 μm) or less, usable for rocket nozzles and re-entry vehicle nose tips, which can be machined to any of the following products:
   (1) Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;
   (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; *or*
   (3) Blocks having a size of 120 mm × 120 mm × 50 mm or greater;

   N.B.:

   See also 0C004. *(L.N. 95 of 2006)*

(b) Pyrolytic or fibrous reinforced graphites, usable for rocket nozzles and re-entry vehicle nose tips usable in "missiles", space launch vehicles specified in 9A004 or sounding rockets specified in 9A104; *(E.R. 6 of 2020)*

   N.B.:

   See also 0C004. *(L.N. 254 of 2008)*

(c) Ceramic composite materials (dielectric constant less than 6 at any frequency from 100 MHz to 100 GHz) for use in radomes usable in "missiles", space launch vehicles specified in 9A004 or sounding rockets specified in 9A104; *(L.N. 254 of 2008)*

(d) Bulk machinable silicon-carbide reinforced unfired ceramic, usable for nose tips usable in "missiles", space launch vehicles specified in 9A004 or sounding rockets specified in 9A104; *(L.N. 254 of 2008)*

(e) Reinforced silicon-carbide ceramic composites, usable for nose tips, re-entry vehicles and nozzle flaps usable in "missiles", space launch vehicles specified in 9A004 or sounding rockets specified in 9A104; *(L.N. 254 of 2008; E.R. 6 of 2020)*

(f) Bulk machinable ceramic composite materials consisting of an 'Ultra High Temperature Ceramic (UHTC)' matrix with a melting point equal to or greater than 3 000°C and reinforced with fibres or filaments, usable for missile components (such as nose-tips, re-entry vehicles, leading edges, jet vanes, control surfaces or rocket motor throat inserts) in "missiles", space launch vehicles specified in 9A004, sounding rockets specified in 9A104 or 'missiles';

Note:

1C107(f) does not control 'Ultra High Temperature Ceramic (UHTC)' materials in non-composite form.

Technical Notes:

1. For the purposes of 1C107(f), 'missile' means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.
2. 'Ultra High Temperature Ceramics (UHTCs)' include:
   (1) Titanium diboride (TiB_2);
   (2) Zirconium diboride (ZrB_2);
   (3) Niobium diboride (NbB_2);
   (4) Hafnium diboride (HfB_2);
   (5) Tantalum diboride (TaB_2);
   (6) Titanium carbide (TiC);
   (7) Zirconium carbide (ZrC);
   (8) Niobium carbide (NbC);
   (9) Hafnium carbide (HfC);
   (10) Tantalum carbide (TaC). *(L.N. 89 of 2021)*

1C111 Propellants and constituent chemicals for propellants, other than those specified in 1C011, as follows: *(L.N. 42 of 2017)*

(a) Propulsive substances:

(1) Spherical or spheroidal aluminium powder, other than that specified in the Munitions List, in particle size of less than 200 μm and an aluminium 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). *(L.N. 132 of 2001)*

(2) Metal powders, other than those specified in the Munitions List, as follows:

(a) Metal powders of zirconium, beryllium or magnesium, or alloys of these metals, if at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 μm (determined by measurement techniques such as using a sieve, laser diffraction or optical scanning), whether spherical, atomized, spheroidal, flaked or ground, consisting 97% by weight or more of any of the following:

(1) Zirconium;

(2) Beryllium;

(3) Magnesium;

Technical Note:

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

(b) Metal powders of either boron or boron alloys with a boron content of 85% or more by weight, if at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 μm (determined by measurement techniques such as using a sieve, laser diffraction or optical scanning), whether spherical, atomized, spheroidal, flaked or ground;

Note:

1C111(a)(2)(a) and 1C111(a)(2)(b) control powder mixtures with a multimodal particle distribution (e.g. mixtures of different grain sizes) if one or more modes are controlled. *(L.N. 42 of 2017)*

(3) Oxidizer substances usable in liquid propellant rocket engines as follows: *(L.N. 254 of 2008)*

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

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

(c) Dinitrogen pentoxide (CAS 10102-03-1);

(d) Mixed Oxides of Nitrogen (MON);

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).

Note:

(Repealed L.N. 89 of 2021)

(e) See the Munitions List for Inhibited Red Fuming Nitric Acid (IRFNA); *(L.N. 65 of 2004)*

(f) See the Munitions List and 1C238 for compounds composed of fluorine and one or more of other halogens, oxygen or nitrogen; *(L.N. 65 of 2004)*

(4) Hydrazine derivatives as follows:

N.B.:

See also Munitions List. *(L.N. 226 of 2009)*

(a) Trimethylhydrazine (CAS 1741-01-1); *(L.N. 89 of 2013)*

(b) Tetramethylhydrazine (CAS 6415-12-9); *(L.N. 89 of 2013)*

(c) N,N diallylhydrazine (CAS 5164-11-4);

(d) Allylhydrazine (CAS 7422-78-8); *(L.N. 89 of 2013)*

(e) Ethylene dihydrazine (CAS 6068-98-0); *(L.N. 89 of 2021)*

(f) Monomethylhydrazine dinitrate;

(g) Unsymmetrical dimethylhydrazine nitrate;

(h) Hydrazinium azide (CAS 14546-44-2); *(L.N. 89 of 2013)*

(i) 1,1-Dimethylhydrazinium azide (CAS 227955-52-4)/1,2-Dimethylhydrazinium azide (CAS 299177-50-7); *(L.N. 89 of 2021)*

(j) Hydrazinium dinitrate (CAS 13464-98-7); *(L.N. 226 of 2009)*

(k) Diimido oxalic acid dihydrazine (CAS 3457-37-2); *(L.N. 161 of 2011)*

(l) 2-hydroxyethylhydrazine nitrate (HEHN);

(m) See the Munitions List for Hydrazinium perchlorate;

(n) Hydrazinium diperchlorate (CAS 13812-39-0); *(L.N. 161 of 2011)*

(o) Methylhydrazine nitrate (MHN) (CAS 29674-96-2);

(p) 1,1-Diethylhydrazine nitrate (DEHN)/1,2-Diethylhydrazine nitrate (DEHN) (CAS 363453-17-2); *and (L.N. 89 of 2021)*

(q) 3,6-dihydrazino tetrazine nitrate (DHTN);

Technical Note:

3,6-dihydrazino tetrazine nitrate (DHTN) is also referred to as 1,4-dihydrazine nitrate. *(L.N. 254 of 2008)*

(5) High energy density materials, other than that specified in the Munitions List, usable in 'missiles' or "unmanned aerial vehicles" specified in 9A012 or 9A112(a): *(L.N. 42 of 2017)*

(a) Mixed fuel that incorporate both solid and liquid fuels, such as boron slurry, having a mass-based energy density of 40×10^6 J/kg or greater;

(b) Other high energy density fuels and fuel additives (e.g. cubane, ionic solutions, JP-10) having a volume-based energy density of 37.5×10^9 J/m^3 or greater, measured at 20°C and one atmosphere (101.325 kPa) pressure;

Note:

1C111(a)(5)(b) does not control fossil refined fuels and biofuels produced from vegetables, including fuels for engines certified for use in civil aviation, unless specially formulated for 'missiles' or "unmanned aerial vehicles" specified in 9A012 or 9A112(a).

Technical Note:

In 1C111(a)(5) 'missiles' means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km. *(L.N. 161 of 2011)*

(6) Hydrazine replacement fuels as follows:

(a) 2-Dimethylaminoethylazide (DMAZ) (CAS 86147-04-8); *(L.N. 42 of 2017)*

(b) Polymeric substances:

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

(2) Hydroxy-terminated polybutadiene (including hydroxyl-terminated polybutadiene) (HTPB) (CAS 69102-90-5), other than that specified in the Munitions List; *(L.N. 89 of 2021)*

(3) Polybutadiene-acrylic acid (PBAA);

(4) Polybutadiene-acrylic acid-acrylonitrile (PBAN) (CAS 25265-19-4/CAS 68891-50-9); *(L.N. 89 of 2021)*

(5) Polytetrahydrofuran polyethylene glycol (TPEG);

Technical Note:

Polytetrahydrofuran polyethylene glycol (TPEG) is a block co-polymer of poly 1,4-Butanediol (CAS 110-63-4) and polyethylene glycol (PEG) (CAS 25322-68-3). *(L.N. 254 of 2008)*

(6) Polyglycidyl nitrate (PGN or poly-GLYN) (CAS 27814-48-8); *(L.N. 42 of 2017)*

(c) Other propellant additives and agents:

(1) See the Munitions List for carboranes, decaboranes, pentaboranes and derivatives thereof; *(L.N. 65 of 2004; L.N. 95 of 2006)*

(2) Triethylene glycol dinitrate (TEGDN) (CAS 111-22-8);

(3) 2-Nitrodiphenylamine (CAS 119-75-5);

(4) Trimethylolethane trinitrate (TMETN) (CAS 3032-55-1);

(5) Diethylene glycol dinitrate (DEGDN) (CAS 693-21-0);

(6) Ferrocene derivatives as follows:

(a) See the Munitions List for catocene;

(b) See the Munitions List for Ethyl ferrocene;

(c) See the Munitions List for Propyl ferrocene; *(L.N. 42 of 2017)*

(d) See the Munitions List for n-butyl ferrocene;

(e) See the Munitions List for Pentyl ferrocene; *(L.N. 89 of 2021)*

(f) See the Munitions List for Dicyclopentyl ferrocene; *(L.N. 42 of 2017)*

(g) See the Munitions List for Dicyclohexyl ferrocene;

(h) See the Munitions List for Diethyl ferrocene; *(L.N. 161 of 2011; L.N. 89 of 2021)*

(i) See the Munitions List for Dipropyl ferrocene;

(j) See the Munitions List for Dibutyl ferrocene; *(L.N. 42 of 2017)*

(k) See the Munitions List for Dihexyl ferrocene; *(L.N. 42 of 2017)*

(l) See the Munitions List for Acetyl ferrocene/1,1'-diacetyl ferrocene; *(L.N. 42 of 2017; L.N. 89 of 2021)*

(m) See the Munitions List for ferrocene carboxylic acids;

(n) See the Munitions List for butacene;

(o) Other ferrocene derivatives usable as rocket propellant burning rate modifiers, other than those specified in the Munitions List; *(L.N. 95 of 2006)*

Note:

1C111(c)(6)(o) does not control ferrocene derivatives that contain a six carbon aromatic functional group attached to the ferrocene molecule. *(L.N. 161 of 2011)*

(7) 4,5 diazidomethyl-2-methyl-1,2,3-triazole (iso-DAMTR); *(L.N. 226 of 2009)*

(d) 'Gel propellants', specifically formulated for use in 'missiles';

Technical Notes:

1. For the purposes of 1C111(d), a 'gel propellant' is a fuel or oxidizer formulation using a gellant such as silicates, kaolin (clay), carbon or any polymeric gellant.
2. For the purposes of 1C111(d), 'missile' means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km. *(L.N. 89 of 2021)*

Note:

For propellants and constituent chemicals for propellants not specified in 1C111, see the Munitions List. *(L.N. 65 of 2004; L.N. 95 of 2006; L.N. 42 of 2017)*

(L.N. 254 of 2008; L.N. 42 of 2017)

1C116 Maraging steels, useable in 'missiles', that meet all of the following descriptions:

N.B.:

See also 1C216.

(a) Having an ultimate tensile strength, measured at 293 K (20°C), equal to or greater than:
  (1) 0.9 GPa in the solution annealed stage; *or*
  (2) 1.5 GPa in the precipitation hardened stage;

(b) In any of the following forms:
  (1) Sheet, plate or tubing with a wall or plate thickness equal to or less than 5.0 mm;
  (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 Notes:

1. Maraging steels are iron alloys that are:
  (a) Generally characterized by high nickel, very low carbon content and the use of substitutional elements or precipitates for the strengthening and age-hardening of the alloys; *and*
  (b) Subjected to heat treatment cycles to facilitate the martensitic transformation process (solution annealed stage) and subsequently age hardened (precipitation hardened stage).
2. In 1C116, 'missile' means complete rocket systems and "unmanned aerial vehicle" systems capable of a range exceeding 300 km.

(L.N. 42 of 2017)

1C117 Materials for the fabrication of 'missiles' components as follows:

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

(c) Tungsten materials in solid form having all of the following:
  (1) Any of the following material compositions:
    (a) Tungsten and alloys containing 97% by weight or more of tungsten;
    (b) Copper infiltrated tungsten containing 80% by weight or more of tungsten;

(c) Silver infiltrated tungsten containing 80% by weight or more of tungsten; *and*

(2) Able to be machined to any of the following products:

(a) Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;

(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;

(c) Blocks having a size of 120 mm by 120 mm by 50 mm or greater;

Technical Note:

In 1C117 'missiles' means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.

(L.N. 161 of 2011)

1C118 Titanium-stabilized duplex stainless steel (Ti-DSS) having all of the following: *(L.N. 65 of 2004)*

(a) All of the following characteristics:

(1) Containing 17.0 to 23.0 weight percent chromium and 4.5 to 7.0 weight percent nickel; *and (E.R. 6 of 2020)*

(2) Having a titanium content of greater than 0.10 weight percent; *and (L.N. 132 of 2001)*

(3) A ferritic-austenitic microstructure (also referred to as a two-phase microstructure) of which at least 10 percent is austenite by volume (according to ASTM E-1181-87 or national equivalents); *and (L.N. 132 of 2001)*

(b) Any of the following forms:

(1) Ingots or bars having a size of 100 mm or more in each dimension;

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

(3) Tubes having an outer diameter of 600 mm or more and a wall thickness of 3 mm or less; *(L.N. 183 of 1999)*

1C202 Alloys, other than those controlled by 1C002(b)(3) or (b)(4), as follows: *(L.N. 95 of 2006)*

(a) Aluminium alloys having both of the following characteristics:

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

(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:

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

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

Technical Note:

The phrase alloys 'capable of' encompasses alloys before or after heat treatment.

(L.N. 65 of 2004)

1C210 'Fibrous or filamentary materials' or prepregs, other than those controlled by 1C010(a), (b) or (e), as follows: *(L.N. 95 of 2006)*

(a) Carbon or aramid 'fibrous or filamentary materials' having either of the following characteristics:

(1) A "specific modulus" of 12.7×10^6 m or greater; *or*

(2) A "specific tensile strength" of 23.5×10^4 m or greater;

Note:

1C210(a) does not control aramid 'fibrous or filamentary materials' having 0.25 percent or more by weight of an ester based fibre surface modifier.

(b) Glass 'fibrous or filamentary materials' having both of the following characteristics:

(1) A "specific modulus" of 3.18×10^6 m or greater; *and*

(2) A "specific tensile strength" of 7.62×10^4 m or greater;

(c) Thermoset resin impregnated continuous "yarns", "rovings", "tows" or "tapes" with a width of 15 mm or less (prepregs), made from carbon or glass 'fibrous or filamentary materials' controlled by 1C210(a) or (b); *(L.N. 95 of 2006)*

Technical Note:

The resin forms the matrix of the composite.

Note:

In 1C210, 'fibrous or filamentary materials' is restricted to continuous "monofilaments", "yarns", "rovings", "tows" or "tapes".

(L.N. 65 of 2004; L.N. 42 of 2017)

1C216 Maraging steel, other than that specified in 1C116, 'capable of' an ultimate tensile strength of 1 950 MPa or more, at 293 K (20°C); *(L.N. 95 of 2006; L.N. 42 of 2017)*

Note:

1C216 does not control forms in which all linear dimensions are 75 mm or less.

Technical Note: (L.N. 42 of 2017)

The phrase maraging steel 'capable of' encompasses maraging steel before or after heat treatment. *(L.N. 42 of 2017)*

(L.N. 65 of 2004)

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;

Note:

In 1C225, mixtures containing boron include boron loaded materials.

Technical Note:

The natural isotopic abundance of boron-10 is approximately 18.5 weight percent (20 atom percent). *(L.N. 132 of 2001)*

1C226 Tungsten, tungsten carbide, and alloys containing more than 90% tungsten by weight, other than that specified by 1C117, having both of the following characteristics: *(L.N. 161 of 2011)*

(a) In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 mm and 300 mm; *and*

(b) A mass greater than 20 kg;

Note:

1C226 does not control manufactures specially designed as weights or gamma-ray collimators.

(L.N. 65 of 2004)

1C227 Calcium having both of the following characteristics:

(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;

(L.N. 65 of 2004)

1C228 Magnesium having both of the following characteristics:

(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;

(L.N. 65 of 2004)

1C229 Bismuth having both of the following characteristics:

(a) A purity of 99.99% or greater by weight; *and*

(b) Containing less than 10 ppm (parts per million) by weight of silver; *(L.N. 42 of 2017)*

(L.N. 65 of 2004)

1C230 Beryllium metal, alloys containing more than 50% beryllium by weight, beryllium compounds, manufactures thereof, and waste or scrap of any of the foregoing;

Note:

1C230 does not control the following: *(L.N. 65 of 2004)*

(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 aluminium) in the form of emeralds or aquamarines. *(L.N. 65 of 2004)*

(L.N. 65 of 2004)

1C231 Hafnium metal, alloys containing more than 60% hafnium by weight, hafnium compounds containing more than 60% hafnium by weight, manufactures thereof, and waste or scrap of any of the foregoing;

(L.N. 132 of 2001)

1C232 Helium-3 (^{3}He), mixtures containing helium-3, and products or devices containing any of the foregoing;

Note:

1C232 does not control a product or device containing less than 1 g of helium-3.

(L.N. 65 of 2004)

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, waste or scrap of any of the foregoing;

Note:

1C233 does not control thermoluminescent dosimeters.

Technical Note:

The natural isotopic abundance of lithium-6 is approximately 6.5 weight percent (7.5 atom percent). *(L.N. 161 of 2011)*

(L.N. 65 of 2004)

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, waste or scrap of any of the foregoing, other than those specified in 0A001(f); *(L.N. 42 of 2017)*

Note:

1C234 does not control zirconium in the form of foil having a thickness of 0.10 mm or less.

(L.N. 65 of 2004)

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;

Note:

1C235 does not control a product or device containing less than 1.48×10^3 GBq (40 Ci) of tritium.

(L.N. 65 of 2004)

1C236 'Radionuclides' appropriate for making neutron sources based on alpha-n reaction, other than those specified in 0C001 and 1C012(a), in the following forms: *(L.N. 42 of 2017)*

(a) Elemental;

(b) Compounds having a total activity of 37 GBq/kg (1 Ci/kg) or greater;

(c) Mixtures having a total activity of 37 GBq/kg (1 Ci/kg) or greater;

(d) Products or devices containing any of the foregoing;

Note:

1C236 does not control a product or device containing less than 3.7 GBq (100 millicuries) of activity.

Technical Note:

In 1C236, 'radionuclides' are any of the following:

—Actinium-225 (Ac-225)

—Actinium-227 (Ac-227)

—Californium-253 (Cf-253)

—Curium-240 (Cm-240)

—Curium-241 (Cm-241)

—Curium-242 (Cm-242)

—Curium-243 (Cm-243)

—Curium-244 (Cm-244)

—Einsteinium-253 (Es-253)

—Einsteinium-254 (Es-254)

—Gadolinium-148 (Gd-148)

—Plutonium-236 (Pu-236)

—Plutonium-238 (Pu-238)

—Polonium-208 (Po-208)

—Polonium-209 (Po-209)

—Polonium-210 (Po-210)

—Radium-223 (Ra-223)

—Thorium-227 (Th-227)

—Thorium-228 (Th-228)

—Uranium-230 (U-230)

—Uranium-232 (U-232). *(L.N. 42 of 2017)*

(L.N. 65 of 2004; L.N. 42 of 2017)

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;

Note:

1C237 does not control the following:

(a) Medical applicators;

(b) A product or device containing less than 0.37 GBq (10 millicuries) of radium-226.

(L.N. 65 of 2004)

1C238 Chlorine trifluoride (ClF_3);

1C239 High explosives, other than those controlled by the Munitions List, or substances or mixtures containing more than 2% thereof, with a crystal density greater than 1.8 gm/cm^3 and having a detonation velocity greater than 8 000 m/s;

1C240 Nickel powder and porous nickel metal, other than those controlled by 0C005, as follows: *(L.N. 95 of 2006)*

(a) Nickel powder having both of the following characteristics:

(1) A nickel purity content of 99.0% or greater by weight; *and*

(2) A mean particle size of less than 10 μm measured by American Society for Testing and Materials (ASTM) B330 standard; *(L.N. 42 of 2017)*

(b) Porous nickel metal produced from materials controlled by 1C240(a); *(L.N. 95 of 2006)*

Note:

1C240 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.

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.

(L.N. 65 of 2004)

1C241 Rhenium, and alloys containing 90% by weight or more of rhenium; and alloys of rhenium and tungsten containing 90% by weight or more of any combination of rhenium and tungsten (other than that specified in 1C226), that meet all of the following descriptions:

(a) In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 mm and 300 mm;

(b) A mass greater than 20 kg;

(L.N. 42 of 2017)

1C350 Chemicals, which may be used as precursors for toxic chemical agents, as follows:

N.B.:

See also 1C450;

See also the Munitions List.

(1) Thiodiglycol (111-48-8);

(2) Phosphorus oxychloride (10025-87-3);
(3) Dimethyl methylphosphonate (756-79-6);
(4) Methyl phosphonyldifluoride (676-99-3) in the Munitions List;
(5) Methyl phosphonyl dichloride (676-97-1);
(6) Dimethylphosphite (868-85-9);
(7) Phosphorus trichloride (7719-12-2);
(8) Trimethyl phosphite (121-45-9);
(9) Thionyl chloride (7719-09-7);
(10) 3-Hydroxy-1-methylpiperidine (3554-74-3);
(11) N,N-Diisopropyl-(beta)-aminoethyl chloride (96-79-7);
(12) N,N-Diisopropyl-(beta)-aminoethane thiol (5842-07-9);
(13) 3-Quinuclidinol (1619-34-7);
(14) Potassium fluoride (7789-23-3);
(15) 2-Chloroethanol (107-07-3);
(16) Dimethylamine (124-40-3);
(17) Diethyl ethylphosphonate (78-38-6);
(18) Diethyl-N,N-dimethylphosphoramidate (2404-03-7);
(19) Diethyl phosphite (762-04-9);
(20) Dimethylamine hydrochloride (506-59-2);
(21) Ethyl phosphinyl dichloride (1498-40-4);
(22) Ethyl phosphonyl dichloride (1066-50-8);
(23) Ethyl phosphonyl difluoride (753-98-0) in the Munitions List; *(L.N. 65 of 2004)*
(24) Hydrogen fluoride (7664-39-3);
(25) Methyl benzilate (76-89-1);
(26) Methyl phosphinyl dichloride (676-83-5);
(27) N,N-Diisopropyl-(beta)-amino ethanol (96-80-0);
(28) Pinacolyl alcohol (464-07-3);
(29) See the Munitions List for O-Ethyl O-2-di-isopropylaminoethyl methylphosphonite (QL) (57856- 11-8); *(L.N. 42 of 2017)*
(30) Triethyl phosphite (122-52-1);
(31) Arsenic trichloride (7784-34-1);
(32) Benzilic acid (76-93-7);
(33) Diethyl methylphosphonite (15715-41-0);
(34) Dimethyl ethylphosphonate (6163-75-3);
(35) Ethyl phosphinyl difluoride (430-78-4);
(36) Methyl phosphinyl difluoride (753-59-3);
(37) 3-Quinuclidone (3731-38-2);
(38) Phosphorus pentachloride (10026-13-8);
(39) Pinacolone (75-97-8);
(40) Potassium cyanide (151-50-8);
(41) Potassium bifluoride (7789-29-9);

(42) Ammonium hydrogen fluoride (1341-49-7);

(43) Sodium fluoride (7681-49-4);

(44) Sodium bifluoride (1333-83-1);

(45) Sodium cyanide (143-33-9);

(46) Triethanolamine (102-71-6);

(47) Phosphorus pentasulphide (1314-80-3);

(48) Di-isopropylamine (108-18-9);

(49) Diethylaminoethanol (100-37-8);

(50) Sodium sulphide (1313-82-2);

(51) Sulphur monochloride (10025-67-9);

(52) Sulphur dichloride (10545-99-0);

(53) Triethanolamine hydrochloride (637-39-8);

(54) N,N-Diisopropyl-(Beta)-aminoethyl chloride hydrochloride (4261-68-1);

(55) Methyl phosphonic acid (993-13-5); *(L.N. 95 of 2006)*

(56) Diethyl methylphosphonate (683-08-9); *(L.N. 95 of 2006)*

(57) N,N-Dimethyl aminophosphoryl dichloride (677-43-0); *(L.N. 95 of 2006)*

(58) Triisopropyl phosphite (116-17-6); *(L.N. 95 of 2006)*

(59) Ethyl diethanolamine (139-87-7); *(L.N. 95 of 2006)*

(60) O,O-Diethyl phosphorothioate (2465-65-8); *(L.N. 95 of 2006)*

(61) O,O-Diethyl phosphorodithioate (298-06-6); *(L.N. 95 of 2006)*

(62) Sodium hexafluorosilicate (16893-85-9); *(L.N. 95 of 2006)*

(63) Methyl phosphonothioic dichloride (676-98-2); *(L.N. 95 of 2006)*

(64) Diethylamine (109-89-7); *(L.N. 89 of 2021)*

(65) N,N-Diisopropylaminoethanethiol hydrochloride (41480-75-5); *(L.N. 89 of 2021)*

1C351 Human and animal pathogens and "toxins", as follows: *(L.N. 42 of 2017)*

(a) Viruses, whether natural, enhanced or modified, either in the form of "isolated live cultures" or as material including living material which has been deliberately inoculated or contaminated with such cultures, as follows:

(1) African horse sickness virus;

(2) African swine fever virus;

(3) Andes virus;

(4) Avian influenza virus that meets any of the following descriptions:

(a) Uncharacterized;

(b) Defined in Annex I(2) EC Directive 2005/94/EC (O.J. L. 10, 14.1.2006, p.16) as having high pathogenicity, as follows:

(1) Type A viruses with an IVPI (intravenous pathogenicity index) in 6-week old chickens of greater than 1.2; *or*

(2) Type A viruses of the subtypes H5 or H7 with genome sequences codified for multiple basic amino acids at the cleavage site of the haemagglutinin molecule similar to that observed for other HPAI

viruses, indicating that the haemagglutinin molecule can be cleaved by a host ubiquitous protease;

(5) Bluetongue virus;

(6) Chapare virus;

(7) Chikungunya virus;

(8) Choclo virus;

(9) Crimean-Congo hemorrhagic fever virus; *(L.N. 89 of 2021)*

(10) *(Repealed L.N. 89 of 2021)*

(11) Dobrava-Belgrade virus;

(12) Eastern equine encephalitis virus;

(13) Ebolavirus: all members of the Ebolavirus genus; *(L.N. 89 of 2021)*

(14) Foot-and-mouth disease virus; *(L.N. 89 of 2021)*

(15) Goat pox virus;

(16) Guanarito virus;

(17) Hantaan virus;

(18) Hendra virus (Equine morbillivirus);

(19) Suid herpesvirus 1 (Pseudorabies virus; Aujeszky's disease); *(L.N. 89 of 2021)*

(20) Classical swine fever virus (Hog cholera virus); *(L.N. 89 of 2021)*

(21) Japanese encephalitis virus;

(22) Junin virus;

(23) Kyasanur Forest disease virus; *(L.N. 89 of 2021)*

(24) Laguna Negra virus;

(25) Lassa virus; *(L.N. 89 of 2021)*

(26) Louping ill virus;

(27) Lujo virus;

(28) Lumpy skin disease virus;

(29) Lymphocytic choriomeningitis virus;

(30) Machupo virus;

(31) Marburgvirus: all members of the Marburgvirus genus; *(L.N. 89 of 2021)*

(32) Monkeypox virus; *(L.N. 89 of 2021)*

(33) Murray Valley encephalitis virus;

(34) Newcastle disease virus;

(35) Nipah virus;

(36) Omsk haemorrhagic fever virus;

(37) Oropouche virus;

(38) Peste des petits ruminants virus;

(39) Swine vesicular disease virus; *(L.N. 89 of 2021)*

(40) Powassan virus; *(L.N. 42 of 2017)*

(41) Rabies virus and all other members of the Lyssavirus genus; *(L.N. 42 of 2017)*

(42) Rift Valley fever virus; *(L.N. 42 of 2017)*

(43) Rinderpest virus; *(L.N. 42 of 2017)*

(44) Rocio virus; *(L.N. 42 of 2017)*

(45) Sabia virus; *(L.N. 42 of 2017)*

(46) Seoul virus; *(L.N. 42 of 2017)*

(47) Sheep pox virus; *(L.N. 42 of 2017)*

(48) Sin nombre virus; *(L.N. 42 of 2017)*

(49) St Louis encephalitis virus; *(L.N. 42 of 2017)*

(50) Porcine Teschovirus; *(L.N. 42 of 2017; L.N. 89 of 2021)*

(51) Tick-borne encephalitis virus (Far Eastern subtype); *(L.N. 42 of 2017; L.N. 89 of 2021)*

(52) Variola virus; *(L.N. 42 of 2017)*

(53) Venezuelan equine encephalitis virus; *(L.N. 42 of 2017)*

(54) Vesicular stomatitis virus; *(L.N. 42 of 2017)*

(55) Western equine encephalitis virus; *(L.N. 42 of 2017)*

(56) Yellow fever virus; *(L.N. 42 of 2017)*

(57) Severe acute respiratory syndrome-related coronavirus (SARS-related coronavirus); *(L.N. 89 of 2021)*

(58) Reconstructed 1918 influenza virus; *(L.N. 89 of 2021)*

(L.N. 89 of 2013; L.N. 42 of 2017)

(b) *(Repealed L.N. 42 of 2017)*

(c) Bacteria, whether natural, enhanced or modified, either in the form of "isolated live cultures" or as material including living material which has been deliberately inoculated or contaminated with such cultures, as follows:

(1) Bacillus anthracis;

(2) Brucella abortus;

(3) Brucella melitensis;

(4) Brucella suis;

(5) Burkholderia mallei (Pseudomonas mallei);

(6) Burkholderia pseudomallei (Pseudomonas pseudomallei);

(7) Chlamydophila psittaci (formally known as chlamydia psittaci);

(8) Clostridium argentinense (formerly known as clostridium botulinum Type G), botulinum neurotoxin producing strains;

(9) Clostridium baratii, botulinum neurotoxin producing strains;

(10) Clostridium botulinum;

(11) Clostridium butyricum, botulinum neurotoxin producing strains;

(12) Clostridium perfringens, epsilon toxin producing types;

(13) Coxiella burnetii;

(14) Francisella tularensis;

(15) Mycoplasma capricolum subspecies capripneumoniae (strain F38);

(16) Mycoplasma mycoides subspecies mycoides SC (small colony); *(L.N. 42 of 2017)*

(17) Rickettsia prowazekii; *(L.N. 42 of 2017; L.N. 89 of 2021)*

(18) Salmonella enterica subspecies enterica serovar Typhi (Salmonella typhi); *(L.N. 42 of 2017; L.N. 89 of 2021)*

(19) Shiga toxin producing Escherichia coli (STEC) of serogroups O26, O45, O103, O104, O111, O121, O145 and 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). *(L.N. 89 of 2021)*

(20) Shigella dysenteriae; *(L.N. 42 of 2017)*

(21) Vibrio cholerae; *(L.N. 42 of 2017)*

(22) Yersinia pestis; *(L.N. 42 of 2017)*

(L.N. 42 of 2017)

(d) "Toxins", as follows, and "sub-units of toxins" thereof:

(1) Botulinum toxins;

(2) Clostridium perfringens alpha, beta 1, beta 2, epsilon and iota toxins;

(3) Conotoxin;

(4) Ricin;

(5) Saxitoxin;

(6) Shiga toxin (shiga-like toxins, verotoxins and verocytotoxins); *(L.N. 89 of 2021)*

(7) Staphylococcus aureus enterotoxins, hemolysin alpha toxin, and toxic shock syndrome toxin (formerly known as staphylococcus enterotoxin F);

(8) Tetrodotoxin;

(9) *(Repealed L.N. 89 of 2021)*

(10) Microcystin (Cyanginosin);

(11) Aflatoxins;

(12) Abrin;

(13) Cholera toxin;

(14) Diacetoxyscirpenol; *(L.N. 89 of 2021)*

(15) T-2 toxin;

(16) HT-2 toxin;

(17) Modeccin;

(18) Volkensin;

(19) Viscum Album Lectin 1 (Viscumin);

Note:

1C351(d) does not control botulinum toxins or conotoxins in product form meeting all of the following criteria:

(a) Are pharmaceutical formulations designed for human administration in the treatment of medical conditions;

(b) Are pre-packaged for distribution as medical products;

(c) Are authorized by a state authority to be marketed as medical products. *(L.N. 42 of 2017)*

(L.N. 42 of 2017)

(e) Fungi, whether natural, enhanced or modified, either in the form of "isolated live cultures" or as material including living material which has been deliberately inoculated or contaminated with such cultures, as follows:

(1) Coccidioides immitis; *and*

(2) Coccidioides posadasii; *(L.N. 254 of 2008)*

Note:

1C351 does not control "vaccines" or "immunotoxins". *(L.N. 95 of 2006)*

(L.N. 65 of 2004)

1C352 *(Repealed L.N. 42 of 2017)*

1C353 'Genetic elements' and 'genetically-modified organisms', as follows:

(a) Any 'genetically-modified organism' that contains, or 'genetic element' that codes for, any of the following:

(1) Any gene or genes specific to any virus specified in 1C351(a) or 1C354(a);

(2) Any gene or genes specific to bacterium specified in 1C351(c) or 1C354(b) or fungus specified in 1C351(e) or 1C354(c), and which is any of the following:

(a) In itself or through its transcribed or translated products represents a significant hazard to human, animal or plant health;

(b) Could 'endow or enhance pathogenicity';

(3) Any "toxins" specified in 1C351(d) or "sub-units of toxins" for such "toxins";

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 the genetic elements control, nucleic acids from an inactivated organism, virus, or sample are considered 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. '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, among other things: virulence, transmissibility, stability, route of infection, host range, reproducibility, ability to evade or suppress host immunity, resistance to medical countermeasures, or detectability.

Note:

1C353 does not include 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 sub-units.

(L.N. 89 of 2021)

1C354 Plant pathogens, as follows:

(a) Viruses, whether natural, enhanced or modified, either in the form of "isolated live cultures" or as material (including living material) which has been deliberately inoculated or contaminated with such cultures, as follows:

(1) Andean potato latent virus (Potato Andean latent tymovirus); *(L.N. 42 of 2017)*

(2) Potato spindle tuber viroid; *(L.N. 95 of 2006)*

(b) Bacteria, whether natural, enhanced or modified, either in the form of "isolated live cultures" or as material which has been deliberately inoculated or contaminated with such cultures, as follows: *(L.N. 95 of 2006)*

(1) Xanthomonas albilineans;

(2) Xanthomonas axonopodis pv. citri (Xanthomonas campestris pv. citri A) [Xanthomonas campestris pv. citri];

(3) Xanthomonas oryzae pv. oryzae (Pseudomonas campestris pv. oryzae);

(4) Clavibacter michiganensis subsp. sepedonicus (Corynebacterium michiganensis subsp. sepedonicum or Corynebacterium sepedonicum);

(5) Ralstonia solanacearum, Race 3, Biovar 2;

(L.N. 42 of 2017)

(c) Fungi, whether natural, enhanced or modified, either in the form of "isolated live cultures" or as material which has been deliberately inoculated or contaminated with such cultures, as follows: *(L.N. 95 of 2006)*

(1) Colletotrichum kahawae (Colletotrichum coffeanum var. virulans);

(2) Cochliobolus miyabeanus (Helminthosporium oryzae);

(3) Microcyclus ulei (syn. Dothidella ulei);

(4) Puccinia graminis ssp. graminis var. graminis/ Puccinia graminis ssp. graminis var. stakmanii (Puccinia graminis [syn. Puccinia graminis f. sp. tritici]);

(5) Puccinia striiformis (syn. Puccinia glumarum);

(6) Magnaporthe oryzae (Pyricularia oryzae);

(7) Peronosclerospora philippinensis (Peronosclerospora sacchari); *(L.N. 42 of 2017)*

(8) Sclerophthora rayssiae var. zeae; *(L.N. 42 of 2017)*

(9) Synchytrium endobioticium; *(L.N. 42 of 2017)*

(10) Tilletia indica; *(L.N. 42 of 2017)*

(11) Thecaphora solani; *(L.N. 42 of 2017)*

1C450 Toxic chemicals and toxic chemical precursors, as follows: *(L.N. 95 of 2006)*

N.B.: See also 1C350, 1C351(d) and the Munitions List.

(a) Toxic chemicals, as follows:

(1) Amiton: O,O-Diethyl S-[2-(diethylamino) ethyl] phosphorothiolate (78-53-5) and corresponding alkylated or protonated salts;

(2) PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene (382-21-8);

(3) BZ: 3-Quinuclidinyl benzilate (6581-06-2);

N.B.: See also the Munitions List.

(4) Phosgene: Carbonyl dichloride (75-44-5);

(5) Cyanogen chloride (506-77-4);

(6) Hydrogen cyanide (74-90-8);

(7) Chloropicrin: Trichloronitromethane (76-06-02);

(b) Toxic chemical precursors, as follows:

(1) Chemicals, other than those controlled by the Munitions List or by 1C350, containing a phosphorus atom to which is bonded one methyl, ethyl, or propyl (normal or iso) group but not further carbon atoms;

except:

Fonofos: O-Ethyl S-Phenyl ethylphosphonothiolothionate (944-22-9);

(2) N,N-Dialkyl [methyl, ethyl or propyl (normal or iso)] phosphoramidic dihalides, other than N,N-Dimethyl aminophosphoryl dichloride which is controlled by 1C350; *(L.N. 89 of 2021)*

(3) Dialkyl [methyl, ethyl or propyl (normal or iso)] N,N-dialkyl [methyl, ethyl or propyl (normal or iso)]-phosphoramidates, other than Diethyl-N,N-dimethylphosphoramidate which is controlled by 1C350;

(4) N,N-Dialkyl [methyl, ethyl or propyl (normal or iso)] aminoethyl-2-chlorides and corresponding protonated salts, other than

N,N-Diisopropyl-(beta)-aminoethyl chloride *or*

N,N-Diisopropyl-(beta)-aminoethyl chloride hydrochloride which are controlled by 1C350;

(5) N,N-Dialkyl [methyl, ethyl or propyl (normal or iso)] aminoethane-2-ols and corresponding protonated salts, other than

N,N-Diisopropyl-(beta)-aminoethanol (96-80-0) *and*

N,N-Diethylaminoethanol (100-37-8) which are controlled by 1C350;

except:

(a) N,N-Dimethylaminoethanol (108-01-0) and corresponding protonated salts;

(b) Protonated salts of N,N-Diethylaminoethanol (100-37-8); *(L.N. 183 of 1999)*

(6) N,N-Dialkyl [methyl, ethyl or propyl (normal or iso)] aminoethane-2-thiols and corresponding protonated salts, other than

N,N-Diisopropyl-(beta)-aminoethane thiol (5842-07-9) and N,N-Diisopropylaminoethanethiol hydrochloride (41480-75-5) which are controlled by 1C350; *(L.N. 89 of 2021)*

(7) See 1C350 for Ethyldiethanolamine (139-87-7); *(L.N. 89 of 2021)*

(8) Methyldiethanolamine (105-59-9);

(c) *(Repealed L.N. 65 of 2004)*

1D SOFTWARE

1D001 "Software" specially designed or modified for the "development", "production" or "use" of equipment controlled by 1B001 to 1B003;

1D002 "Software" for the "development" of organic "matrix", metal "matrix" or carbon "matrix" laminates or "composites";

1D003 "Software" specially designed or modified to enable equipment to perform the functions of equipment specified in 1A004(c) or 1A004(d);

(L.N. 254 of 2008; L.N. 226 of 2009)

1D101 "Software" specially designed or modified for the operation or maintenance of goods specified in 1B101, 1B102, 1B115, 1B117, 1B118 or 1B119;

(L.N. 132 of 2001; L.N. 65 of 2004; L.N. 95 of 2006; L.N. 42 of 2017)

1D103 "Software" specially designed for analysis of reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures;

1D201 "Software" specially designed for the "use" of goods controlled by 1B201;

1E 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, 1B or 1C;

(L.N. 183 of 1999; L.N. 226 of 2009; L.N. 89 of 2021)

1E002 Other "technology", as follows:

(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: *(L.N. 42 of 2017)*

(1) Ceramic powders having all of the following characteristics: *(L.N. 42 of 2017)*

(a) Any of the following compositions:

(1) Single or complex oxides of zirconium and complex oxides of silicon or aluminium;

(2) Single nitrides of boron (cubic crystalline forms);

(3) Single or complex carbides of silicon or boron; *(L.N. 42 of 2017)*

(4) Single or complex nitrides of silicon;

(b) Total metallic impurities, excluding intentional additions, of less than:

(1) 1 000 ppm for single oxides or carbides; *or*

(2) 5 000 ppm for complex compounds or single nitrides; *and*

(c) Being any of the following:

(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; *(L.N. 161 of 2011)*

(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; *(L.N. 42 of 2017)*

(3) *(Repealed L.N. 42 of 2017)*

(2) Non-"composite" ceramic materials composed of the materials described in 1E002(c)(1);

Note:

1E002(c)(2) does not control "technology" for abrasives. *(L.N. 42 of 2017; L.N. 89 of 2021)*

(d) *(Repealed L.N. 42 of 2017)*

(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); *(L.N. 89 of 2021)*

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 specified in 1A004(c) or 1A004(d); *(L.N. 226 of 2009; L.N. 42 of 2017)*

Technical Note:

(Repealed L.N. 42 of 2017)

1E101 "Technology" according to the General Technology Note for the "use" of goods controlled by 1A102, 1B001, 1B101, 1B102, 1B115 to 1B119, 1C001, 1C101, 1C107, 1C111 to 1C118, 1D101 or 1D103;

(L.N. 183 of 1999; L.N. 65 of 2004; L.N. 89 of 2021)

1E102 "Technology" according to the General Technology Note for the "development" of "software" controlled by 1D001, 1D101 or 1D103;

(L.N. 226 of 2009)

1E103 "Technology" for the regulation of temperature, pressure or atmosphere in autoclaves or hydroclaves, when used for the "production" of "composites" or partially processed "composites";

1E104 "Technology" relating to the "production" of pyrolitically derived materials formed on a mould, mandrel or other substrate from precursor gases which decompose in the 1 573 K (1 300°C) to 3173 K (2 900°C) temperature range at pressures of 130 Pa to 20 kPa;

Note:

1E104 includes "technology" for the composition of precursor gases, flow-rates and process control schedules and parameters.

1E201 "Technology" according to the General Technology Note for the "use" of goods specified in 1A002, 1A007, 1A202, 1A225 to 1A227, 1B201, 1B225 to 1B234, 1C002(b)(3) or (b)(4), 1C010(b), 1C202, 1C210, 1C216, 1C225 to 1C241 or 1D201;

(L.N. 226 of 2009; L.N. 42 of 2017)

1E202 "Technology" according to the General Technology Note for the "development" or "production" of goods specified in 1A007, 1A202 or 1A225 to 1A227;

(L.N. 226 of 2009)

1E203 "Technology" according to the General Technology Note for the "development" of "software" controlled by 1D201;