CATEGORY 0—NUCLEAR MATERIALS, FACILITIES, AND EQUIPMENT

0A SYSTEMS, EQUIPMENT AND COMPONENTS

0A001 "Nuclear reactors" and specially designed or prepared equipment and components therefor, as follows:

(a) "Nuclear reactors"; *(L.N. 85 of 2023)*

(b) Metal vessels, or major shop-fabricated parts therefor, specially designed or prepared to contain the core of a "nuclear reactor"; *(L.N. 85 of 2023)*

(c) Manipulative equipment specially designed or prepared for inserting or removing fuel in a "nuclear reactor";

(d) Control rods specially designed or prepared for the control of the fission process in a "nuclear reactor", support or suspension structures therefor, rod drive mechanisms and rod guide tubes;

(e) Pressure tubes specially designed or prepared to contain both fuel elements and the primary coolant in a "nuclear reactor"; *(L.N. 42 of 2017)*

(f) Zirconium metal tubes or zirconium alloy tubes (or assemblies of tubes) specially designed or prepared for use as fuel cladding in a "nuclear reactor", and in quantities exceeding 10 kg;

N.B.:

For zirconium pressure tubes, see 0A001(e) and for calandria tubes, see 0A001(h). *(L.N. 42 of 2017)*

(g) Coolant pumps or circulators specially designed or prepared for circulating the primary coolant of "nuclear reactors"; *(L.N. 42 of 2017)*

(h) 'Nuclear reactor internals' specially designed or prepared for use in a "nuclear reactor", including support columns for the core, fuel channels, calandria tubes, thermal shields, baffles, core grid plates, and diffuser plates; *(L.N. 42 of 2017)*

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

In 0A001(h), 'nuclear reactor internals' means any major structure within a reactor vessel which has one or more functions such as supporting the core, maintaining fuel alignment, directing primary coolant flow, providing radiation shields for the reactor vessel, and guiding in-core instrumentation. *(L.N. 42 of 2017)*

(i) Heat exchangers as follows:

(1) Steam generators specially designed or prepared for the primary, or intermediate, coolant circuit of a "nuclear reactor"; *(L.N. 85 of 2023)*

(2) Other heat exchangers specially designed or prepared for use in the primary coolant circuit of a "nuclear reactor";

Note:

0A001(i) does not control heat exchangers for the supporting systems of the reactor (e.g. the emergency cooling system or the decay heat cooling system). *(L.N. 42 of 2017)*

(j) Neutron detectors specially designed or prepared for determining neutron flux levels within the core of a "nuclear reactor"; *(L.N. 42 of 2017)*

(k) 'External thermal shields' specially designed or prepared for use in a "nuclear reactor" for the reduction of heat loss and also for the protection of containment vessel;

Technical Note:

In 0A001(k), 'external thermal shields' means major structures placed over the reactor vessel that reduce heat loss from the reactor and reduce temperature within the containment vessel. *(L.N. 42 of 2017)*

0B TEST, INSPECTION AND PRODUCTION EQUIPMENT

0B001 Plant for the separation of isotopes of "natural uranium", "depleted uranium" or "special fissile materials", and specially designed or prepared equipment and components therefor, as follows: *(L.N. 42 of 2017)*

(a) Plant specially designed for separating isotopes of "natural uranium", "depleted uranium", or "special fissile materials", as follows: *(L.N. 42 of 2017)*

(1) Gas centrifuge separation plant;

(2) Gaseous diffusion separation plant;

(3) Aerodynamic separation plant;

(4) Chemical exchange separation plant;

(5) Ion-exchange separation plant;

(6) Atomic vapour "laser" isotope separation plant;

(7) Molecular "laser" isotope separation plant;

(8) Plasma separation plant;

(9) Electro magnetic separation plant;

(b) Gas centrifuges and assemblies and components, specially designed or prepared for gas centrifuge separation process, as follows:

Technical Note:

In 0B001(b), 'high strength-to-density ratio material' means any of the following items:

(a) Maraging steel capable of an ultimate tensile strength of 1.95 GPa or more;

(b) Aluminium alloys capable of an ultimate tensile strength of 0.46 GPa or more;

(c) "Fibrous or filamentary materials" with a "specific modulus" of more than 3.18×10^6 m and a "specific tensile strength" greater than 7.62×10^4 m. *(L.N. 42 of 2017)*

(1) Gas centrifuges;

(2) Complete rotor assemblies;

(3) Rotor tube cylinders with a wall thickness of 12 mm or less, a diameter of between 75 mm and 650 mm, made from 'high strength-to-density ratio materials';

(4) Rings or bellows with a wall thickness of 3 mm or less and a diameter of between 75 mm and 650 mm and designed to give local support to a rotor tube or to join a number together, made from 'high strength-to-density ratio materials';

(5) Baffles of between 75 mm and 650 mm diameter for mounting inside a rotor tube, made from 'high strength-to-density ratio materials';

(6) Top or bottom caps of between 75 mm and 650 mm diameter to fit the ends of a rotor tube, made from 'high strength-to-density ratio materials';

(7) Magnetic suspension bearings as follows:

(a) Bearing assemblies consisting of an annular magnet suspended within a housing made of or protected by "materials resistant to corrosion by UF_6" containing a damping medium and having the magnet coupling with a pole piece or second magnet fitted to the top cap of the rotor;

(b) Active magnetic bearings specially designed or prepared for use with gas centrifuges; *(L.N. 42 of 2017)*

(8) Specially prepared bearings comprising a pivot-cup assembly mounted on a damper;

(9) Molecular pumps comprised of cylinders having internally machined or extruded helical grooves and internally machined bores;

(10) Ring-shaped motor stators for multiphase AC hysteresis (or reluctance) motors for synchronous operation within a vacuum at a frequency of 600 Hz or more and a power of 40 Volt-Amps or more;

(11) Centrifuge housing or centrifuge recipients to contain the rotor tube assembly of a gas centrifuge, consisting of a rigid cylinder of wall thickness up to 30 mm with precision machined ends that are parallel to each other and perpendicular to the longitudinal axis of cylinder to within 0.05 degrees or less;

(12) Scoops consisting of specially designed or prepared tubes for the extraction of UF_6 gas from within the rotor tube by a Pitot tube action and capable of being fixed to the central gas extraction system; *(L.N. 42 of 2017)*

(13) Frequency changers (converters or inverters) specially designed or prepared to supply motor stators for gas centrifuge enrichment, having all of the following characteristics, and specially designed components therefor:

(a) A multiphase frequency output of 600 Hz or greater; *(L.N. 42 of 2017)*

(b) High stability (with frequency control better than 0.2%); *(L.N. 42 of 2017)*

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

(14) Shut-off and control valves as follows:

(a) Shut-off valves specially designed or prepared to act on the feed, product or tails from UF_6 gaseous streams of an individual gas centrifuge;

(b) Bellows-sealed valves, shut-off or control, made of or protected by "materials resistant to corrosion by UF_6", with an inside diameter of 10 mm to 160 mm, specially designed or prepared for use in main or auxiliary systems of gas centrifuge enrichment plants; *(L.N. 42 of 2017)*

Note:

(Repealed L.N. 42 of 2017)

(c) Equipment and components, specially designed or prepared for gaseous diffusion separation process, as follows:

(1) Gaseous diffusion barriers made of porous metallic, polymer or ceramic "materials resistant to corrosion by UF_6" with a pore size of 10 to 100 nm, a thickness of 5 mm or less, and, for tubular forms, a diameter of 25 mm or less;

(2) Gaseous diffuser housings made of or protected by "materials resistant to corrosion by UF_6";

(3) Compressors or gas blowers with a suction volume capacity of 1 m^3/min or more of UF_6 that discharge pressure up to 500 kPa, have a pressure ratio of 10:1 or less, and are made of or protected by "materials resistant to corrosion by UF_6";

(4) Rotary shaft seals for compressors or blowers controlled by 0B001(c)(3) and designed for a buffer gas in-leakage rate of less than 1 000 cm^3/min;

(5) Heat exchangers made of or protected by "materials resistant to corrosion by UF_6", and designed for a leakage pressure rate of less than 10 Pa per hour under a pressure differential of 100 kPa;

(6) Bellows-sealed valves, manual or automated, shut-off or control, made of or protected by "materials resistant to corrosion by UF_6"; *(L.N. 42 of 2017)*

(d) Equipment and components, specially designed or prepared for aerodynamic separation process, as follows:

(1) Separation nozzles consisting of slit-shaped, curved channels having a radius of curvature less than 1 mm, resistant to corrosion by UF_6, and having a knife-edge contained within the nozzle which separates the gas flowing through the nozzle into two streams;

(2) Cylindrical or conical tubes (vortex tubes), made of or protected by "materials resistant to corrosion by UF_6", with one or more tangential inlets; *(L.N. 42 of 2017)*

(3) Compressors or gas blowers made of or protected by "materials resistant to corrosion by UF_6", and rotary shaft seals therefor;

(4) Heat exchangers made of or protected by "materials resistant to corrosion by UF_6";

(5) Separation element housings, made of or protected by "materials resistant to corrosion by UF_6" to contain vortex tubes or separation nozzles;

(6) Bellows-sealed valves, manual or automated, shut-off or control, made of or protected by "materials resistant to corrosion by UF_6", with a diameter of 40 mm or more; *(L.N. 42 of 2017)*

(7) Process systems for separating UF_6 from carrier gas (hydrogen or helium) to 1 ppm UF_6 content or less, including:

(a) Cryogenic heat exchangers and cryoseparators capable of temperatures of 153 K (-120°C) or less;

(b) Cryogenic refrigeration units capable of temperatures of 153 K (-120°C) or less;

(c) Separation nozzle or vortex tube units for the separation of UF_6 from carrier gas;

(d) UF_6 cold traps capable of freezing out UF_6;

(e) Equipment and components, specially designed or prepared for chemical exchange separation process, as follows:

(1) Fast-exchange liquid-liquid pulse columns with stage residence time of 30 seconds or less and resistant to concentrated hydrochloric acid (e.g. made of or protected by suitable plastic materials such as fluorinated hydrocarbon polymers or glass);

(2) Fast-exchange liquid-liquid centrifugal contactors with stage residence time of 30 seconds or less and resistant to concentrated hydrochloric acid (e.g. made of or protected by suitable plastic materials such as fluorinated hydrocarbon polymers or glass);

(3) Electrochemical reduction cells resistant to concentrated hydrochloric acid solutions, for reduction of uranium from one valence state to another;

(4) Electrochemical reduction cells feed equipment to take U^{+4} from the organic stream and, for those parts in contact with the process stream, made of or protected by suitable material (e.g. glass, fluorocarbon polymers, polyphenyl sulphate, polyether sulfone and resin-impregnated graphite); *(L.N. 85 of 2023)*

(5) Feed preparation systems for producing high purity uranium chloride solution consisting of dissolution, solvent extraction and/or ion exchange equipment for purification and electrolytic cells for reducing the uranium U^{+6} or U^{+4} to U^{+3};

(6) Uranium oxidation systems for oxidation of U^{+3} to U^{+4};

(f) Equipment and components, specially designed or prepared for ion-exchange separation process, as follows:

(1) Fast reacting ion-exchange resins, pellicular or porous macro-reticulated resins in which the active chemical exchange groups are limited to a coating on the surface of an inactive porous support structure, and other composite structures in any suitable form, including particles or fibres, with diameters of 0.2 mm or less, resistant to concentrated hydrochloric acid and designed to have an exchange rate half-time of less than 10 seconds and capable of operating at temperatures in the range of 373 K (100°C) to 473 K (200°C);

(2) Ion exchange columns (cylindrical) with a diameter greater than 1 000 mm, made of or protected by materials resistant to concentrated hydrochloric acid (e.g. titanium or fluorocarbon plastics) and capable of operating at temperatures in the range of 373 K (100°C) to 473 K (200°C) and pressures above 0.7 MPa;

(3) Ion exchange reflux systems (chemical or electrochemical oxidation or reduction systems) for regeneration of the chemical reducing or oxidizing agents used in ion exchange enrichment cascades;

(g) Equipment and components, specially designed or prepared for laser-based separation processes using atomic vapour laser isotope separation, as follows: *(L.N. 42 of 2017; L.N. 85 of 2023)*

(1) Uranium metal vaporization systems designed to achieve a delivered power of 1 kW or more on the target for use in laser enrichment;

(2) Liquid or vapour uranium metal handling systems specially designed or prepared for handling molten uranium, molten uranium alloys or uranium metal vapour for use in laser enrichment, and specially designed components for such systems;

N.B.:

See also 2A225.

(3) Product and tails collector assemblies for collecting uranium metal in liquid or solid form, made of or protected by materials resistant to the heat and corrosion of uranium metal vapour or liquid, such as yttria-coated graphite or tantalum;

(4) Separator module housings (cylindrical or rectangular vessels) for containing the uranium metal vapour source, the electron beam gun and the product and tails collectors;

(5) "Lasers" or "laser" systems specially designed or prepared for the separation of uranium isotopes with a spectrum frequency stabilization for operation over extended periods of time;

N.B.:

See also 6A005 and 6A205. *(L.N. 42 of 2017; L.N. 85 of 2023)*

(h) Equipment and components, specially designed or prepared for laser-based separation processes using molecular laser isotope separation, as follows: *(L.N. 42 of 2017; L.N. 85 of 2023)*

(1) Supersonic expansion nozzles for cooling mixtures of UF_6 and carrier gas to 150 K (-123°C) or less and made from "materials resistant to corrosion by UF_6";

(2) Product or tails collector components or devices, specially designed or prepared for collecting uranium material or uranium tails material following illumination with laser light, made of "materials resistant to corrosion by UF_6"; *(L.N. 42 of 2017; L.N. 85 of 2023)*

(3) Compressors made of or protected by "materials resistant to corrosion by UF_6", and rotary shaft seals therefor;

(4) Equipment for fluorinating UF_5 (solid) to UF_6 (gas);

(5) Process systems for separating UF_6 from carrier gas (e.g. nitrogen, argon or other gases) including: *(L.N. 42 of 2017)*

(a) Cryogenic heat exchangers and cryoseparators capable of temperatures of 153 K (-120°C) or less;

(b) Cryogenic refrigeration units capable of temperatures of 153 K (-120°C) or less;

(c) UF_6 cold traps capable of freezing out UF_6;

(6) "Lasers" or "laser" systems specially designed or prepared for the separation of uranium isotopes with a spectrum frequency stabilization for operation over extended periods of time;

N.B.:

See also 6A005 and 6A205.

(i) Equipment and components, specially designed or prepared for plasma separation process, as follows:

(1) Microwave power sources and antennae for producing or accelerating ions, with an output frequency greater than 30 GHz and mean power output greater than 50 kW;

(2) Radio frequency ion excitation coils for frequencies of more than 100 kHz and capable of handling more than 40 kW mean power;

(3) Uranium plasma-generation systems;

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

(5) Product and tails collector assemblies for uranium metal in solid form, made of or protected by materials resistant to the heat and corrosion of uranium vapour such as yttria-coated graphite or tantalum;

(6) Separator module housings (cylindrical) for containing the uranium plasma source, radio-frequency drive coil and the product and tails collectors and made of a suitable non-magnetic material (e.g. stainless steel);

(j) Equipment and components, specially designed or prepared for electromagnetic separation process, as follows:

(1) Ion sources, single or multiple, consisting of a vapour source, ionizer, and beam accelerator made of suitable non-magnetic materials (e.g. graphite, stainless steel, or copper) and capable of providing a total ion beam current of 50 mA or greater;

(2) Ion collector plates for collection of enriched or depleted uranium ion beams, consisting of two or more slits and pockets and made of suitable non-magnetic materials (e.g. graphite or stainless steel);

(3) Vacuum housings for uranium electromagnetic separators made of non-magnetic materials (e.g. stainless steel) and designed to operate at pressures of 0.1 Pa or lower;

(4) Magnet pole pieces with a diameter greater than 2 m;

(5) High voltage power supplies for ion sources, having all of the following characteristics:

(a) Capable of continuous operation;

(b) Output voltage of 20 000 V or greater;

(c) Output current of 1 A or greater; *and*

(d) Voltage regulation of better than 0.01% over a period of 8 hours;

N.B.:

See also 3A227.

(6) Magnet power supplies (high power, direct current) having all of the following characteristics:

(a) Capable of continuous operation with a current output of 500 A or greater at a voltage of 100 V or greater; *and*

(b) Current or voltage regulation better than 0.01% over a period of 8 hours;

N.B.:

See also 3A226.

(L.N. 42 of 2017)

0B002 Specially designed or prepared auxiliary systems, equipment and components, as follows, for isotope separation plant controlled by 0B001, made of or protected by "materials resistant to corrosion by UF_6":

(a) Feed autoclaves, ovens or systems used for passing UF_6 to the enrichment process;

(b) Desublimers or cold traps, used to remove UF_6 from the enrichment process for subsequent transfer upon heating;

(c) Product and tails stations for transferring UF_6 into containers;

(d) Liquefaction or solidification stations used to remove UF_6 from the enrichment process by compressing, cooling and converting UF_6 to a liquid or solid form;

(e) Piping systems and header systems specially designed or prepared for handling UF_6 within gaseous diffusion, centrifuge or aerodynamic cascades; *(L.N. 42 of 2017)*

(f) Vacuum systems and pumps as follows:

(1) Vacuum manifolds, vacuum headers or vacuum pumps having a suction capacity of 5 m^3/min or more;

(2) Vacuum pumps specially designed for use in UF_6 bearing atmospheres made of, or protected by, "materials resistant to corrosion by UF_6"; *or*

(3) Vacuum systems consisting of vacuum manifolds, vacuum headers and vacuum pumps, and designed for service in UF_6 bearing atmospheres; *(L.N. 42 of 2017)*

(g) UF_6 mass spectrometers/ion sources capable of taking on-line samples from UF_6 gas streams and meeting all of the following descriptions:

(1) Capable of measuring ions of 320 atomic mass units or greater and having a resolution of better than 1 part in 320; *(L.N. 42 of 2017)*

(2) Ion sources constructed of or protected by nickel, nickel-copper alloys with a nickel content of 60% or more by weight, or nickel-chrome alloys;

(3) Electron bombardment ionization sources;

(4) Having a collector system suitable for isotopic analysis; *(L.N. 42 of 2017)*

0B003 Plant for the conversion of uranium and equipment specially designed or prepared therefor, as follows:

(a) Systems for the conversion of uranium ore concentrates to UO_3;

(b) Systems for the conversion of UO_3 to UF_6;

(c) Systems for the conversion of UO_3 to UO_2;

(d) Systems for the conversion of UO_2 to UF_4;

(e) Systems for the conversion of UF_4 to UF_6;

(f) Systems for the conversion of UF_4 to uranium metal;

(g) Systems for the conversion of UF_6 to UO_2;

(h) Systems for the conversion of UF_6 to UF_4;

(i) Systems for the conversion of UO_2 to $UC1_4$; *(L.N. 132 of 2001)*

0B004 Plant for the production or concentration of heavy water, deuterium and deuterium compounds and specially designed or prepared equipment and components therefor, as follows:

(a) Plant for the production of heavy water, deuterium or deuterium compounds, as follows:

(1) Water-hydrogen sulphide exchange plants;

(2) Ammonia-hydrogen exchange plants;

(b) Equipment and components, as follows:

(1) Water-hydrogen sulphide exchange towers with diameters of 1.5 m or more, capable of operating at pressures equal to or greater than 2 MPa; *(L.N. 42 of 2017)*

(2) Single stage, low head (i.e. 0.2 MPa) centrifugal blowers or compressors for hydrogen sulphide gas circulation (i.e. gas containing more than 70% by weight hydrogen sulphide, H_2S) with a throughput capacity greater than or equal to 56 m^3/second when operating at pressures greater than or equal to 1.8 MPa suction and having seals designed for wet H_2S service; *(L.N. 85 of 2023)*

(3) Ammonia-hydrogen exchange towers greater than or equal to 35 m in height with diameters of 1.5 m to 2.5 m capable of operating at pressures greater than 15 MPa;

(4) Tower internals, including stage contactors, and stage pumps, including those which are submersible, for heavy water production utilizing the ammonia-hydrogen exchange process;

(5) Ammonia crackers with operating pressures greater than or equal to 3 MPa for heavy water production utilizing the ammonia-hydrogen exchange process;

(6) Infrared absorption analysers capable of on-line hydrogen/deuterium ratio analysis where deuterium concentrations are equal to or greater than 90% by weight; *(L.N. 85 of 2023)*

(7) Catalytic burners for the conversion of enriched deuterium gas into heavy water utilizing the ammonia-hydrogen exchange process;

(8) Complete heavy water upgrade systems, or columns therefor, for the upgrade of heavy water to reactor-grade deuterium concentration;

(9) Ammonia synthesis converters or synthesis units specially designed or prepared for heavy water production utilizing the ammonia-hydrogen exchange process; *(L.N. 42 of 2017)*

0B005 Plant specially designed for the fabrication of "nuclear reactor" fuel elements and specially designed or prepared equipment therefor;

Technical Note:

Specially designed or prepared equipment for the fabrication of "nuclear reactor" fuel elements includes equipment which: *(L.N. 42 of 2017)*

(a) Normally comes into direct contact with or directly processes or controls the production flow of nuclear materials;

(b) Seals the nuclear materials within the cladding;

(c) Checks the integrity of the cladding or the seal; *(L.N. 42 of 2017)*

(d) Checks the finish treatment of the sealed fuel; *or (L.N. 42 of 2017)*

(e) Is used for assembling reactor elements. *(L.N. 42 of 2017)*

0B006 Plant for the reprocessing of irradiated "nuclear reactor" fuel elements, and specially designed or prepared equipment and components therefor;

Note:

0B006 includes:

(a) Plant for the reprocessing of irradiated "nuclear reactor" fuel elements including equipment and components which normally come into direct contact with and directly control the irradiated fuel and the major nuclear material and fission product processing streams;

(b) Fuel element decladding equipment and chopping or shredding machines, i.e. remotely operated equipment to cut, chop or shear irradiated "nuclear reactor" fuel assemblies, bundles or rods; *(L.N. 42 of 2017; L.N. 85 of 2023)*

(c) Dissolver vessels or dissolvers employing mechanical devices specially designed or prepared for the dissolution of irradiated "nuclear reactor" fuel, which are capable of withstanding hot, highly corrosive liquids, and which can be remotely loaded, operated and maintained; *(L.N. 85 of 2023)*

(d) Solvent extractors, such as packed or pulsed columns, mixer settlers or centrifugal contactors, resistant to the corrosive effects of nitric acid and specially designed or prepared for use in a plant for the reprocessing of irradiated "natural uranium", "depleted uranium" or "special fissile materials"; *(L.N. 42 of 2017)*

(e) Holding or storage vessels specially designed to be critically safe and resistant to the corrosive effects of nitric acid;

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

Holding or storage vessels may have the following features:

1. Walls or internal structures with a boron equivalent (calculated for all constituent elements as defined in the Note to 0C004) of at least two percent;
2. A maximum diameter of 175 mm for cylindrical vessels; *or*
3. A maximum width of 75 mm for either a slab or annular vessel.

(f) Neutron measurement systems specially designed or prepared for integration and use with automated process control systems in a plant for the reprocessing of irradiated "natural uranium", "depleted uranium" or "special fissile materials". *(L.N. 42 of 2017)*

0B007 Plant for the conversion of plutonium and equipment specially designed or prepared therefor, as follows:

(a) Systems for the conversion of plutonium nitrate to oxide;

(b) Systems for plutonium metal production; *(L.N. 132 of 2001)*

0C MATERIALS

0C001 "Natural uranium" or "depleted uranium" or thorium in the form of metal, alloy, chemical compound or concentrate and any other material containing one or more of the foregoing;

Note:

0C001 does not control the following:

(a) Four grammes or less of "natural uranium" or "depleted uranium" when contained in a sensing component in instruments;

(b) "Depleted uranium" specially fabricated for the following civil non-nuclear applications:

(1) Shielding;

(2) Packaging;

(3) Ballasts having a mass not greater than 100 kg;

(4) Counter-weights having a mass not greater than 100 kg;

(c) Alloys containing less than 5% thorium;

(d) Ceramic products containing thorium, which have been manufactured for non-nuclear use.

0C002 "Special fissile materials";

Note:

0C002 does not control four "effective grammes" or less when contained in a sensing component in instruments.

0C003 Deuterium, heavy water (deuterium oxide) and other compounds of deuterium, and mixtures and solutions containing deuterium, in which the isotopic ratio of deuterium to hydrogen exceeds 1:5 000;

0C004 Graphite having a purity level better than 5 parts per million 'boron equivalent' and with a density greater than 1.5 g/cm^3 for use in a "nuclear reactor", and in quantities exceeding 1 kg; *(L.N. 42 of 2017)*

N.B.:

See also 1C107.

Notes:

1. For the purpose of export control, the competent authorities of the "Participating State" in which the exporter is established will determine whether or not the exports of graphite meeting the above specifications are for "nuclear reactor" use. 0C004 does not control graphite having a purity level better than 5 ppm (parts per million) boron equivalent and with a density greater than 1.5 g/cm^3 not for use in a "nuclear reactor". *(L.N. 42 of 2017; L.N. 85 of 2023)*
2. In 0C004, 'boron equivalent' (BE) is defined as the sum of BE_Z for impurities (excluding BE_{carbon} since carbon is not considered an impurity) including boron, where:

$BE_Z(ppm) = CF \times$ concentration of element Z in ppm;

where CF is the conversion factor = $\frac{\sigma_Z A_B}{\sigma_B A_Z}$

and σ_B and σ_z are the thermal neutron capture cross sections (in barns) for naturally occurring boron and element Z respectively; and A_B and A_Z are the atomic masses of naturally occurring boron and element Z respectively. *(L.N. 132 of 2001)*

0C005 Specially prepared compounds or powders for the manufacture of gaseous diffusion barriers, resistant to corrosion by UF_6 (e.g. nickel or alloys containing 60% or more by weight of nickel, aluminium oxide and fully fluorinated hydrocarbon polymers), having a purity of 99.9% by weight or more and a particle size less than 10 μm measured by American Society for Testing and Materials (ASTM) B330 standard and a high degree of particle size uniformity;

(L.N. 42 of 2017; L.N. 85 of 2023)

0D SOFTWARE

0D001 "Software" specially designed or modified for the "development", "production" or "use" of goods controlled by this Category;

0E TECHNOLOGY

0E001 "Technology" according to the Nuclear Technology Note for the "development", "production" or "use" of goods controlled by this Category;

(L.N. 183 of 1999)