2026/759

31.3.2026

COUNCIL REGULATION (EU) 2026/759

of 30 March 2026

amending Regulation (EU) No 267/2012 concerning restrictive measures against Iran and repealing Regulation (EU) No 961/2010

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 215 thereof,

Having regard to Council Decision (CFSP) 2026/762 of 30 March 2026 amending Decision 2010/413/CFSP concerning restrictive measures against Iran [1],

Having regard to the joint proposal of the High Representative of the Union for Foreign Affairs and Security Policy and of the European Commission,

Whereas:

(1) On 26 July 2010, the Council adopted Decision 2010/413/CFSP [2] and on 23 March 2012, the Council adopted Regulation (EU) No 267/2012 [3], concerning restrictive measures against Iran.

(2) On 29 September 2025, following the re-imposition of the United Nations (UN) nuclear-related sanctions on Iran in line with United Nations Security Council (UNSC) Resolution 2231 (2015), the Council adopted Decision (CFSP) 2025/1972 [4] which amended Decision 2010/413/CFSP and re-imposed all Union nuclear-related sanctions on Iran that had been suspended or terminated under the Joint Comprehensive Plan of Action.

(3) In particular, the Council decided to re-impose the prohibition on the direct or indirect supply, sale or transfer dual-use goods and technology listed in Annex I to Council Regulation (EC) No 428/2009 [5] for the use in, or benefit of, Iran.

(4) On 20 May 2021, the Union adopted Regulation (EU) 2021/821 of the European Parliament and of the Council [6]. That Regulation repealed Regulation (EC) No 428/2009.

(5) Regulation (EU) No 267/2012 should therefore be amended accordingly,

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) No 267/2012 is amended as follows:

(1) in Article 2, paragraphs 2 and 3 are replaced with the following:

‘2. Annex I shall include goods and technology, including software, which are dual-use items as defined in Regulation (EU) 2021/821 of the European Parliament and of the Council (*), except for certain goods and technology as specified in part A of Annex I to this Regulation.

[1] OJ L, 2026/762, 31.3.2026, ELI: http://data.europa.eu/eli/dec/2026/762/oj.
[2] Council Decision 2010/413/CFSP of 26 July 2010 concerning restrictive measures against Iran and repealing Common Position 2007/140/CFSP (OJ L 195, 27.7.2010, p. 39, ELI: http://data.europa.eu/eli/dec/2010/413/oj).
[3] Council Regulation (EU) No 267/2012 of 23 March 2012 concerning restrictive measures against Iran and repealing Regulation (EU) No 961/2010 (OJ L 88, 24.3.2012, p. 1, ELI: http://data.europa.eu/eli/reg/2012/267/oj).
[4] Council Decision (CFSP) 2025/1972 of 29 September 2025 amending Decision 2010/413/CFSP concerning restrictive measures against Iran (OJ L, 2025/1972, 29.9.2025, ELI: http://data.europa.eu/eli/dec/2025/1972/oj).
[5] Council Regulation (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items (OJ L 134, 29.5.2009, p. 1, ELI: http://data.europa.eu/eli/reg/2009/428/oj).
[6] Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (OJ L 206, 11.6.2021, p. 1, ELI: http://data.europa.eu/eli/reg/2021/821/oj).

3. The Member State concerned shall inform the other Member States and the Commission, within four weeks, of authorisations granted in accordance with Regulation (EU) 2021/821, in respect of the goods and technology as specified in part A of Annex I to this Regulation.

(*) Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (OJ L 206, 11.6.2021, p. 1, ELI: http://data.europa.eu/eli/reg/2021/821/oj).';

(2) in Article 3 paragraph 2 is replaced with the following:

'2. For all exports for which an authorisation is required under this Article, such authorisation shall be granted by the competent authorities of the Member State where the exporter is established and shall be in accordance with the detailed rules laid down in Article 14 of Regulation (EU) 2021/821. The authorisation shall be valid throughout the Union.';

(3) the Annexes are amended in accordance with the Annex to this Regulation.

Article 2

This Regulation shall enter into force on the day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 30 March 2026.

For the Council

The President

M. PANAYIOTOU

ANNEX

The Annexes to Regulation (EU) No 267/2012 are amended as follows:

(1) Annexes I to IIa are replaced by the following:

'ANNEX I

Goods and technology referred to in Article 2(1), (2) and (4), Article 3(3), Article 5(1), Article 6, Article 8(4), Article 17(2) and Article 31(1)

This Annex comprises all goods and technology listed in Annex I to Regulation (EU) 2021/821, as defined therein, with the exception of those specified in Part A. The relevant prohibitions shall not apply to the execution until 1 January 2026 of contracts related to goods and technology specified in Part C concluded before 30 September 2025.

PART A

	Description
1.	"Information security" systems and equipment for final use for public telecommunication services and internet service providing or for the protection by the network operator of these services, including components necessary for operation, installation (including on-site installation), maintenance (checking), repair, overhaul and refurbishing services related to those systems and equipment as follows: a. Systems, equipment, application specific "electronic assemblies", modules and integrated circuits for "information security" related to networks such as wifi, 2G, 3G, 4G or fixed networks (classical, ADSL or optic fibre), as follows, and components therefor specially designed for "information security": *N.B.: For the control of Global Navigation Satellite Systems (GNSS) receiving equipment containing or employing decryption (i.e. GPS or GLONASS), see 7A005 of Annex I to Regulation (EU) 2021/821.* 1. Designed or modified to use "cryptography" employing digital techniques performing any cryptographic function other than authentication or digital signature and having any of the following: *Technical Notes:* *1. Authentication and digital signature functions include their associated key management function.* *2. Authentication includes all aspects of access control where there is no encryption of files or text except as directly related to the protection of passwords, Personal Identification Numbers (PINs) or similar data to prevent unauthorised access.* *3. "Cryptography" does not include "fixed" data compression or coding techniques.* *Note: 1.a.1. includes equipment designed or modified to use"cryptography" employing analogue principles when implemented with digital techniques.* a. A "symmetric algorithm" employing a key length in excess of 56 bits; or b. An "asymmetric algorithm" where the security of the algorithm is based on any of the following: 1. Factorisation of integers in excess of 512 bits (e.g. RSA);

	Description
	2. Computation of discrete logarithms in a multiplicative group of a finite field of size greater than 512 bits (e.g. Diffie-Hellman over Z/pZ); or 3. Discrete logarithms in a group other than mentioned in 1.a.1.b.2. in excess of 112 bits (e.g. Diffie-Hellman over an elliptic curve);
2.	"Software" as follows, for final use for public telecommunication services, internet service providing or for the protection by the network operator of these services: a. "Software" specially designed or modified for the "use" of equipment specified in 1.a.1 or "software" specified in 2.b.1; b. Specific "software", as follows: 1. "Software" having the characteristics, or performing or simulating the functions of the equipment, specified in 5A002.a.1;
3.	"Technology" according to the General Technology Note for the "use" of equipment specified in 1.a.1 or "software" specified in 2.a. or 2.b.1 of this list, for final use for public telecommunication services and internet service providing or for the protection by the network operator of these services.

PART B

Article 6 applies to the following goods:

Item from Annex I to Regulation (EU) 2021/821	Description
0A001	"Nuclear reactors" and specially designed or prepared equipment and components therefor, as follows: a. "Nuclear reactors"; b. Metal vessels, or major shop-fabricated parts therefor, including the reactor vessel head for a reactor pressure vessel, specially designed or prepared to contain the core of a "nuclear reactor"; c. Manipulative equipment specially designed or prepared for inserting or removing fuel in a "nuclear reactor";

Item from Annex I to Regulation (EU) 2021/821	Description
	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"; f. Zirconium metal tubes or zirconium alloy tubes (or assembles 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.* g. Coolant pumps specially designed or prepared for circulating the primary coolant of "nuclear reactors"; h. "Nuclear reactor internals" specially designed or prepared for use in a "nuclear reactor", including support columns for the core, fuel channels, thermal shields, baffles, core grid plates, and diffuser plates; *Note: 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.* i. Heat exchangers as follows: 1. Steam generators specially designed or prepared for the primary, or intermediate, coolant circuit of a "nuclear reactor"; 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.* j. Neutron detectors specially designed or prepared for determining neutron flux levels within the core of a "nuclear reactor"; or k. "External thermal shields" specially designed or prepared for use in a "nuclear reactor" for the reduction of heat loss and also for the containment vessel protection.

Item from Annex I to Regulation (EU) 2021/821	Description
	Technical Note: *In 0A001.k. "external thermal shields" means major structures placed over the reactor vessel which reduce heat loss from the reactor and reduce temperature within the containment vessel.*
0C002	Low enriched uranium covered by 0C002 when it is incorporated in assembled nuclear fuels elements.

PART C

Item from Annex I to Regulation (EC) No 428/2009	Description
5A002	"Information security" systems, equipment and components therefor, as follows: a. Systems, equipment, application specific "electronic assemblies", modules and integrated circuits for "information security", as follows and other specially designed components therefor: *N.B.: For the control of Global Navigation Satellite Systems (GNSS) receiving equipment containing or employing decryption (i.e. GPS or GLONASS), see 7A005.* 1. Designed or modified to use "cryptography" employing digital techniques performing any cryptographic function other than authentication or digital signature and having any of the following: *Technical Notes:* *1. Authentication and digital signature functions include their associated key management function.* *2. Authentication includes all aspects of access control where there is no encryption of files or text except as directly related to the protection of passwords, Personal Identification Numbers (PINs) or similar data to prevent unauthorised access.* *3. "Cryptography" does not include "fixed" data compression or coding techniques.* *Note: 5A002.a.1. includes equipment designed or modified to use "cryptography" employing analogue principles when implemented with digital techniques.* a. A "symmetric algorithm" employing a key length in excess of 56 bits; or

Item from Annex I to Regulation (EC) No 428/2009	Description
	b. An “asymmetric algorithm” where the security of the algorithm is based on any of the following: 1. Factorisation of integers in excess of 512 bits (e.g. RSA); 2. Computation of discrete logarithms in a multiplicative group of a finite field of size greater than 512 bits (e.g. Diffie-Hellman over Z/pZ); or 3. Discrete logarithms in a group other than mentioned in 5A002.a.1.b.2. in excess of 112 bits (e.g. Diffie-Hellman over an elliptic curve);
5D002	“Software” as follows: a. “Software” specially designed or modified for the “use” of equipment specified in 5A002.a.1 or “software” specified in 5D002.c.1; c. Specific “software”, as follows: 1. “Software” having the characteristics, or performing or simulating the functions of the equipment, specified in 5A002.a.1; *Note: 5D002 does not control “software” as follows:* *a. “Software” required for the “use” of equipment excluded from control by the Note to 5A002;* *b. “Software” providing any of the functions of equipment excluded from control by the Note to 5A002.*
5E002	“Technology” according to the General Technology Note for the “use” of equipment specified in 5A002.a.1 or “software” specified in 5D002.a. or 5D002.c.1 of this list.

ANNEX II

Goods and technology referred to in Article 2(1), Article 2(2) and 2(4), Article 3(3), Article 5(1), Article 8(4), Article 17(2), Article 31(1) and Article 45

INTRODUCTORY NOTES

1. Unless otherwise stated, reference numbers used in the column entitled "Description" refer to the descriptions of dual-use items and technology set out in Annex I to Regulation (EU) 2021/821.

2. A reference number in the column entitled "Related item from Annex I to Regulation (EU) 2021/821" means that the characteristics of the item described in the column "Description" lie outside the parameters set out in the description of the dual-use entry referred to.

3. Definitions of terms between "single quotation marks" are given in a technical note to the relevant item.

4. Definitions of terms between "double quotation marks" can be found in Annex I to Regulation (EU) 2021/821.

GENERAL NOTES

1. The object of the prohibitions contained in this Annex should not be defeated by the export of any non-prohibited goods (including plant) containing one or more prohibited components when the prohibited component or components are the principal element of the goods and can feasibly be removed or used for other purposes.

N.B.: *In judging whether the prohibited component or components are to be considered the principal element, it is necessary to weigh the factors of quantity, value and technological know-how involved and other special circumstances which might establish the prohibited component or components as the principal element of the goods being procured.*

2. The goods specified in this Annex include both new and used goods.

GENERAL TECHNOLOGY NOTE (GTN)

1. The sale, supply, transfer or export of "technology" which is "required" for the "development", "production" or "use" of goods the sale, supply, transfer or export of which is prohibited in Part A (Goods) below, is prohibited in accordance with the provisions of Section II.B.

2. The sale, supply, transfer or export of "technology" which is "required" for the "development" or "production" of goods the sale, supply, transfer or export of which is controlled in Part A (Goods) of Annex IIa, is prohibited in accordance with the provisions of Section II.B.

3. The "technology" "required" for the "development", "production" or "use" of prohibited goods remains under prohibition even when applicable to non-prohibited goods.

4. Prohibitions do not apply to that "technology" which is the minimum necessary for the installation, operation, maintenance (checking) and repair of those goods which are not prohibited or the export of which has been authorised in accordance with Regulation (EC) No 423/2007, Regulation (EU) No 961/2010 or this Regulation.

5. Prohibitions on "technology" transfer do not apply to information "in the public domain", to "basic scientific research" or to the minimum necessary information for patent applications.

II.A. GOODS

A0. Nuclear Materials, Facilities, and Equipment		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A0.001	Hollow cathode lamps as follows: a. Iodine hollow cathode lamps with windows in pure silicon or quartz; or b. Uranium hollow cathode lamps.	—
II.A0.002	Faraday isolators in the wavelength range 500 nm – 650 nm.	—
II.A0.003	Optical gratings in the wavelength range 500 nm – 650 nm.	—
II.A0.004	Optical fibres in the wavelength range 500 nm – 650 nm coated with anti-reflecting layers in the wavelength range 500 nm – 650 nm and having a core diameter greater than 0,4 mm but not exceeding 2 mm	—
II.A0.005	Nuclear reactor vessel components and testing equipment, other than those specified in 0A001, as follows: a. Seals; b. Internal components; or c. Sealing, testing and measurement equipment.	0A001
II.A0.006	Nuclear detection systems for detection, identification or quantification of radioactive materials and radiation of nuclear origin and specially designed components thereof other than those specified in 0A001.j. or 1A004.c.	0A001.j 1A004.c
II.A0.007	Bellows-sealed valves made of aluminium alloy or stainless steel type 304, 304L or 316L. *Note: This item does not cover bellow valves defined in 0B001.c.6 and 2A226.*	0B001.c.6 2A226
II.A0.008	Laser mirrors, other than those specified in 6A005.e, consisting of substrates having a thermal expansion coefficient of $10^{-6}K^{-1}$ or less at 20 °C (e.g. fused silica or sapphire). *Note: This item does not cover optical systems specially designed for astronomical applications, except if the mirrors contain fused silica.*	0B001.g.5, 6A005.e

A0. Nuclear Materials, Facilities, and Equipment

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A0.009	Laser lenses, other than those specified in 6A005.e.2, consisting of substrates having a thermal expansion coefficient of $10^{-6}K^{-1}$ or less at 20 °C (e.g. fused silica).	0B001.g, 6A005.e.2
II.A0.010	Pipes, piping, flanges, fittings made of, or lined with, nickel or nickel alloy containing more than 40 % nickel by weight, other than those specified in 2B350.h.1.	2B350
II.A0.011	Vacuum pumps other than those specified in 0B002.f.2 or 2B231, as follows: a. Turbomolecular pumps having a flowrate equal to or greater than 400 l/s; b. Roots type vacuum roughing pumps having a volumetric aspiration flowrate greater than 200 m^3/h; or c. Bellows-sealed, scroll, dry compressor, and bellows-sealed, scroll, dry vacuum pumps.	0B002.f.2, 2B231
II.A0.012	Shielded enclosures for the manipulation, storage and handling of radioactive substances (Hot cells).	0B006
II.A0.013	“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, other than those specified in 0C001.	0C001
II.A0.014	Detonation chambers having a capacity of explosion absorption of more than 2,5 kg TNT equivalent.	—

A1. Materials, chemicals, “microorganisms” and “toxins”

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A1.001	Bis (2-ethylhexyl) phosphoric acid (HDEHP or D2HPA) (CAS 298-07-7) solvent in any quantity, with a purity greater than 90 %.	—
II.A1.002	Fluorine gas (CAS 7782-41-4), with a purity of at least 95 %.	—

A1. Materials, chemicals, “microorganisms” and “toxins”		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A1.005	Electrolytic cells for fluorine production with an output capacity greater than 100 g of fluorine per hour. *Note: This item does not cover electrolytic cells defined in item 1B225.*	1B225
II.A1.006	Catalysts, other than those prohibited by 1A225, containing platinum, palladium or rhodium, usable 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.	1B231, 1A225
II.A1.007	Aluminium and its alloys, other than those specified in 1C002.b.4 or 1C202.a, in crude or semi-fabricated form having either of the following characteristics: a. Capable of an ultimate tensile strength of 460 MPa or more at 293 K (20 °C); or b. Having a tensile strength of 415 MPa or more at 298 K (25 °C).	1C002.b.4, 1C202.a
II.A1.008	Magnetic metals, of all types and of whatever form, having an initial relative permeability of 120 000 or more and a thickness between 0,05 and 0,1 mm.	1C003.a
II.A1.009	“Fibrous or filamentary materials” or prepregs, as follows: *N.B. see also II.A1.019.a.* a. Carbon or aramid “fibrous or filamentary materials” having either of the following characteristics: 1. A “specific modulus” exceeding 10×10^6 m; or 2. A “specific tensile strength” exceeding 17×10^4 m; b. Glass “fibrous or filamentary materials” having either of the following characteristics: 1. A “specific modulus” exceeding $3{,}18 \times 10^6$ m; or 2. A “specific tensile strength” exceeding $76{,}2 \times 10^3$ m;	1C010.a 1C010.b 1C210.a 1C210.b

A1. Materials, chemicals, “microorganisms” and “toxins”		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	c. Thermoset resin-impregnated continuous “yarns”, “rovings”, “tows” or “tapes” with a width of 15 mm or less (once prepregs), made from carbon or glass “fibrous or filamentary materials” other than those specified in II.A1.010.a. or b. *Note: This item does not cover “fibrous or filamentary materials” defined in items 1C010.a, 1C010.b, 1C210.a and 1C210.b.*	
II.A1.010	Resin-impregnated or pitch-impregnated fibres (prepregs), metal or carbon-coated fibres (preforms) or “carbon fibre preforms”, as follows: a. Made from “fibrous or filamentary materials” specified in II.A1.009 above; b. Epoxy resin “matrix” impregnated carbon “fibrous or filamentary materials” (prepregs), specified in 1C010.a, 1C010.b or 1C010.c, for the repair of aircraft structures or laminates, of which the size of individual sheets does not exceed 50 cm × 90 cm; c. Prepregs specified in 1C010.a, 1C010.b or 1C010.c, when impregnated with phenolic or epoxy resins having a glass transition temperature (Tg) less than 433 K (160 °C) and a cure temperature lower than the glass transition temperature. *Note: This item does not cover “fibrous or filamentary materials” defined in item 1C010.e.*	1C010.e. 1C210
II.A1.011	Reinforced silicon carbide ceramic composites usable for nose tips, re-entry vehicles, nozzle flaps, usable in “missiles”, other than those specified in 1C107.	1C107
II.A1.012	Maraging steels, other than those specified in 1C116 or 1C216, “capable of” an ultimate tensile strength of 2 050 MPa or more, at 293 K (20 °C). *Technical Note:* *The phrase “maraging steel capable of” encompasses maraging steel before or after heat treatment.*	1C216
II.A1.013	Tungsten, tantalum, tungsten carbide, tantalum carbide and alloys, having both of the following characteristics: a. In forms having a hollow cylindrical or spherical symmetry (including cylinder segments) with an inside diameter between 50 mm and 300 mm; and b. A mass greater than 5 kg. *Note: This item does not cover tungsten, tungsten carbide and alloys defined in item 1C226.*	1C226

A1. Materials, chemicals, “microorganisms” and “toxins”		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A1.014	Elemental powders of cobalt, neodymium or samarium or alloys or mixtures thereof containing at least 20 % by weight of cobalt, neodymium or samarium, with a particle size less than 200 μm.	—
II.A1.015	Pure tributyl phosphate (TBP) (CAS No 126-73-8) or any mixture having a TBP content of more than 5 % by weight.	—
II.A1.016	“Maraging steel”, other than those prohibited by 1C116, 1C216 or II.A1.012 *Technical Note:* *“Maraging steels” are iron alloys generally characterised by high nickel, very low carbon content and the use of substitutional elements or precipitates to produce strengthening and age-hardening of the alloy.*	—
II.A1.017	Metals, metal powders and material as follows: a. Tungsten and tungsten alloys, other than those prohibited by 1C117, in the form of uniform spherical or atomized particles of 500 μm diameter or less with a tungsten content of 97 % by weight or more; b. Molybdenum and molybdenum alloys, other than those prohibited by 1C117, in the form of uniform spherical or atomized particles of 500 μm diameter or less with a molybdenum content of 97 % by weight or more; or c. Tungsten materials in the solid form, other than those prohibited by 1C226, or II.A1.013 having material compositions as follows: 1. Tungsten and alloys containing 97 % by weight or more of tungsten; 2. Copper infiltrated tungsten containing 80 % by weight or more of tungsten; or 3. Silver infiltrated tungsten containing 80 % by weight or more of tungsten.	—

A1. Materials, chemicals, “microorganisms” and “toxins”

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A1.018	Soft magnetic alloys having a chemical composition as follows: a. Iron content between 30 % and 60 %; or b. Cobalt content between 40 % and 60 %.	—
II.A1.019	“Fibrous or filamentary materials” or prepregs, not prohibited by Annex I or by Annex II (under II.A1.009, II.A1.010) of this Regulation, or not specified by Annex I of Regulation (EU) 2021/821, as follows: a. Carbon “fibrous or filamentary materials”; *Note: II.A1.019a. does not cover fabrics.* b. Thermoset resin-impregnated continuous “yarns”, “rovings”, “tows”, or “tapes”, made from carbon “fibrous or filamentary materials”; or c. Polyacrylonitrile (PAN) continuous “yarns”, “rovings”, “tows” or “tapes”	—

A2. Materials Processing

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A2.001	Vibration test systems, equipment and components thereof, other than those specified in 2B116: a. Vibration test systems employing feedback or closed loop techniques and incorporating a digital controller, capable of vibrating a system at an acceleration equal to or greater than 0,1 g rms between 0,1 Hz and 2 kHz and imparting forces equal to or greater than 50 kN, measured “bare table”; *Technical Note:* *“Vibration test systems incorporating a digital controller” are those systems, the functions of which are, partly or entirely, automatically controlled by stored and digitally coded electrical signals.*	2B116

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	b. Digital controllers, combined with specially designed vibration test "software", with a real-time bandwidth greater than 5 kHz designed for use with vibration test systems specified in 2B116.a.; *Technical Note:* *"Real-time control bandwidth" means the maximum rate at which a controller can execute complete cycles of sampling, processing data and transmitting control signals.* c. Vibration thrusters (shaker units), with or without associated amplifiers, capable of imparting a force equal to or greater than 50 kN, measured "bare table", and usable in vibration test systems specified in 2B116.a.; or d. Test piece support structures and electronic units designed to combine multiple shaker units in a system capable of providing an effective combined force equal to or greater than 50 kN, measured "bare table", and usable in vibration systems specified in 2B116.a. *Technical Note:* *"Bare table" means a flat table, or surface, with no fixture or fittings.*	
II.A2.002	Machine tools and components and numerical controls for machine tools, as follows: a. Machine tools for grinding having positioning accuracies with "all compensations available" equal to or less (better) than 15 μm according to ISO 230/2 (1988) or national equivalents along any linear axis; *Note: This item does not cover machine tools for grinding defined in items 2B201.b and 2B001.c.* b. Components and numerical controls, specially designed for machine tools specified in 2B001, 2B201, or under a.	2B201.b 2B001.c
II.A2.003	Balancing machines and related equipment as follows: a. Balancing machines, designed or modified for dental or other medical equipment, having all the following characteristics: 1. Not capable of balancing rotors/assemblies having a mass greater than 3 kg;	2B119

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	2. Capable of balancing rotors/assemblies at speeds greater than 12 500 rpm; 3. Capable of correcting imbalance in two planes or more; and 4. Capable of balancing to a residual specific imbalance of 0,2 g × mm per kg of rotor mass; *Note: II.A2.003 does not control balancing machines designed or modified for dental or other medical equipment.* b. "Indicator heads" designed or modified for use with machines specified in 2B119.a. above. *Technical Note:* *"Indicator heads" are sometimes known as balancing instrumentation.*	
II.A2.004	Remote manipulators that can be used to provide remote actions in radiochemical separation operations or hot cells, other than those specified in 2B225, having either of the following characteristics: a. A capability of penetrating a hot cell wall of 0,3 m or more (through the wall operation); or b. A capability of bridging over the top of a hot cell wall with a thickness of 0,3 m or more (over the wall operation).	2B225
II.A2.006	Furnaces capable of operation at temperatures above 400 °C as follows: a. Oxidation furnaces b. Controlled atmosphere heat treatment furnaces *Note: This item does not cover tunnel kilns with roller or car conveyance, tunnel kilns with conveyor belt, pusher type kilns or shuttle kilns, specially designed for the production of glass, tableware ceramics or structural ceramics.*	2B226 2B227

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A2.007	"Pressure transducers", other than those defined in 2B230, capable of measuring absolute pressures at any point in the range 0 to 200 kPa and having both of the following characteristics: a. Pressure sensing elements made of or protected by "Materials resistant to corrosion by uranium hexafluoride (UF_6)", and b. Having either of the following characteristics: 1. A full scale of less than 200 kPa and an "accuracy" of better than ± 1 % of full scale; or 2. A full scale of 200 kPa or greater and an "accuracy" of better than 2 kPa.	2B230
II.A2.011	Centrifugal separators, capable of continuous separation without the propagation of aerosols and manufactured from: a. Alloys with more than 25 % nickel and 20 % chromium by weight; b. Fluoropolymers; c. Glass (including vitrified or enamelled coating or glass lining); d. Nickel or alloys with more than 40 % nickel by weight; e. Tantalum or tantalum alloys; f. Titanium or titanium alloys; or g. Zirconium or zirconium alloys. *Note: This item does not cover centrifugal separators defined in item 2B352.c.*	2B352.c

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A2.012	Sintered metal filters made of nickel or nickel alloy with more than 40 % nickel by weight. *Note: This item does not cover filters defined in item 2B352.d.*	2B352.d
II.A2.013	Spin-forming machines and flow-forming machines, other than those controlled by 2B009, 2B109 or 2B209, having a roller force of more than 60 kN and specially designed components therefor. *Technical Note:* *For the purpose of II.A2.013, machines combining the functions of spin-forming and flow-forming are regarded as flow-forming machines.*	—
II.A2.014	Liquid-liquid contacting equipment (mixer-settlers, pulsed columns, centrifugal contactors); and liquid distributors, vapour distributors or liquid collectors designed for such equipment where all surfaces that come in direct contact with the chemical(s) being processed are any of the following: *N.B. see also III.A2.008.* a. Made from any of the following materials: 1. Alloys with more than 25 % nickel and 20 % chromium by weight; 2. Fluoropolymers; 3. Glass (including vitrified or enamelled coating or glass lining); 4. Graphite or “carbon graphite”; 5. Nickel or alloys with more than 40 % nickel by weight;	2B350.e

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	6. Tantalum or tantalum alloys; 7. Titanium or titanium alloys; 8. Zirconium or zirconium alloys; or 9. Niobium (columbium) or niobium alloys; or b. Made from both stainless steel and one or more of the materials specified in II. A2.014.a. *Technical Note:* *"Carbon graphite" is a composition consisting of amorphous carbon and graphite, in which the graphite content is 8 % or more by weight.*	
II.A2.015	Industrial equipment and components, other than those specified in 2B350.d, as follows: *N.B. see also III.A2.009.* Heat exchangers or condensers with a heat transfer surface area greater than 0,05 m^2, and less than 30 m^2; and tubes, plates, coils or blocks (cores) designed for such heat exchangers or condensers, where all surfaces that come in direct contact with the fluid(s) are any of the following: a. Made from any of the following materials: 1. Alloys with more than 25 % nickel and 20 % chromium by weight; 2. Fluoropolymers; 3. Glass (including vitrified or enamelled coating or glass lining); 4. Graphite or "carbon graphite"; 5. Nickel or alloys with more than 40 % nickel by weight; 6. Tantalum or tantalum alloys; 7. Titanium or titanium alloys;	2B350.d

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	8. Zirconium or zirconium alloys; 9. Silicon carbide; 10. Titanium carbide; or 11. Niobium (columbium) or niobium alloys; or b. Made from both stainless steel and one or more of the materials specified in II. A2.015.a. *Note: This item does not cover vehicle radiators.* *Technical Note:* *The materials used for gaskets and seals and other implementation of sealing functions do not determine the status of control of the heat exchanger.*	
II.A2.016	Multiple-seal, and seal-less pumps, other than those specified in 2B350.i, suitable for corrosive fluids, with manufacturer's specified maximum flow-rate greater than 0,6 m^3/hour, or vacuum pumps with manufacturer's specified maximum flow-rate greater than 5 m^3/hour [measured under standard temperature (273 K or 0 °C) and pressure (101,3 kPa) conditions]; and casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for such pumps, in which all surfaces that come in direct contact with the chemical(s) being processed are any of the following: *NB. see also III.A2.010.* a. Made from any of the following materials: 1. Alloys with more than 25 % nickel and 20 % chromium by weight; 2. Ceramics; 3. Ferrosilicon; 4. Fluoropolymers; 5. Glass (including vitrified or enamelled coatings or glass lining); 6. Graphite or "carbon graphite" 7. Nickel or alloys with more than 40 % nickel by weight;	2B350.i

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	8. Tantalum or tantalum alloys; 9. Titanium or titanium alloys; 10. Zirconium or zirconium alloys; 11. Niobium (columbium) or niobium alloys; or 12. Aluminium alloys; or b. Made from both stainless steel and one or more of the materials specified in II. A2.016.a. *Technical Note:* *The materials used for gaskets and seals and other implementation of sealing functions do not determine the status of control of the pump.*	

A3. Electronics		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A3.001	High voltage direct current power supplies having both of the following characteristics: a. Capable of continuously producing, over a time period of eight hours, 10 kV or more, with output power of 5 kW or more with or without sweeping; and b. Current or voltage stability better than 0,1 % over a time period of four hours. *Note: This item does not cover power supplies defined in items 0B001.j.5 and 3A227.*	3A227
II.A3.002	Mass spectrometers, other than those specified in 3A233 or 0B002.g, capable of measuring ions of 200 atomic mass units or more and having a resolution of better than 2 parts in 200, as follows, and ion sources thereof: a. Inductively coupled plasma mass spectrometers (ICP/MS); b. Glow discharge mass spectrometers (GDMS); c. Thermal ionisation mass spectrometers (TIMS);	3A233

A3. Electronics		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	d. Electron bombardment mass spectrometers having both of the following features: 1. A molecular beam inlet system that injects a collimated beam of analyte molecules into a region of the ion source where the molecules are ionised by an electron beam; and 2. One or more "cold traps" that can be cooled to a temperature of 193 K (– 80 °C); e. Not used f. Mass spectrometers equipped with a microfluorination ion source designed for actinides or actinide fluorides. *Technical Notes:* *1. Electron bombardment mass spectrometers in II.A3.002.d. are also known as electron impact mass spectrometers or electron ionisation mass spectrometers.* *2. In II.A3.002.d.2., a "cold trap" is a device that traps gas molecules by condensing or freezing them on cold surfaces. For the purposes of II.A3.002.d.2., a closed-loop gaseous helium cryogenic vacuum pump is not a "cold trap".*	
II.A3.004	Frequency changers or generators, other than those specified in 0B001.b.13., usable as a variable or fixed frequency motor drive, having all of the following characteristics: a. Multiphase output providing a power of 40 VA or greater; b. Operating at a frequency of 600 Hz or more; and c. Frequency control better (less) than 0,2 %. *Technical Notes:* *1. Frequency changers in II.A3.004 are also known as converters or inverters.* *2. Frequency changers in II.A3.004 may be marketed as Generators, Electronic Test Equipment, AC Power Supplies, Variable Speed Motors Drives, Variable Speed Drives (VSDs), Variable Frequency Drives (VFDs), Adjustable Frequency Drives (AFDs), or Adjustable Speed Drives (ASDs).*	3A225 0B001.b.13

A6. Sensors and Lasers		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A6.001	Yttrium aluminium garnet (YAG) rods	—
II.A6.002	Optical equipment and components, other than those specified in 6A002, 6A004.b as follows: Infrared optics in the wavelength range 9 000 nm – 17 000 nm and components thereof, including cadmium telluride (CdTe) components.	6A002 6A004.b
II.A6.003	Wave front corrector systems for use with a laser beam having a diameter exceeding 4 mm, and specially designed components thereof, including control systems, phase front sensors and "deformable mirrors" including bimorph mirrors. *Note: This item does not cover mirrors defined in 6A004.a, 6A005.e and 6A005.f.*	6A003
II.A6.004	Argon ion "lasers" having an average output power equal to or greater than 5 W. *Note: This item does not cover argon ion "lasers" defined in items 0B001.g.5, 6A005 and 6A205.a.*	6A005.a.6 6A205.a
II.A6.005	Semiconductor "lasers" and components thereof, as follows: a. Individual semiconductor "lasers" with an output power greater than 200 mW each, in quantities larger than 100; or b. Semiconductor "laser" arrays having an output power greater than 20 W. *Notes:* *1. Semiconductor "lasers" are commonly called "laser" diodes.* *2. This item does not cover "lasers" defined in items 0B001.g.5, 0B001.h.6 and 6A005.b.* *3. This item does not cover "laser" diodes with a wavelength in the range 1 200 nm – 2 000 nm.*	6A005.b

A6. Sensors and Lasers		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A6.006	"Tunable" semiconductor "lasers" and "tunable" semiconductor "laser" arrays, of a wavelength between 9 μm and 17 μm, as well as array stacks of semiconductor "lasers" containing at least one "tunable" semiconductor "laser" array of such wavelength. *Notes:* *1. Semiconductor "lasers" are commonly called "laser" diodes.* *2. This item does not cover semiconductor "lasers" defined in items 0B001.h.6 and 6A005.b*	6A005.b
II.A6.007	Solid state "tunable" "lasers" and specially designed components thereof as follows: a. Titanium-sapphire "lasers"; or b. Alexandrite "lasers". *Note: This item does not cover titanium-sapphire and alexandrite "lasers" defined in items 0B001.g.5, 0B001.h.6 and 6A005.c.1.*	6A005.c.1
II.A6.008	Neodymium-doped (other than glass) "lasers", having an output wavelength greater than 1 000 nm but not exceeding 1 100 nm and output energy exceeding 10 J per pulse. *Note: This item does not cover neodymium-doped (other than glass) "lasers" defined in item 6A005.c.2.b.*	6A005.c.2
II.A6.009	Components of acousto-optics, as follows: a. Framing tubes and solid-state imaging devices having a recurrence frequency equal to or exceeding 1 kHz; b. Recurrence frequency supplies; or c. Pockels cells.	6A203.b.4.c

A6. Sensors and Lasers		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A6.010	Radiation-hardened cameras, or lenses thereof, other than those specified in 6A203.c., specially designed, or rated as radiation-hardened, to withstand a total radiation dose greater than 50×10^3 Gy (silicon) (5×10^6 rad (silicon)) without operational degradation. *Technical Note:* *The term Gy(silicon) refers to the energy in Joules per kilogram absorbed by an unshielded silicon sample when exposed to ionising radiation.*	6A203.c
II.A6.011	"Tunable" pulsed dye laser amplifiers and oscillators, having all of the following characteristics: a. Operating at wavelengths between 300 nm and 800 nm; b. An average output power greater than 10 W but not exceeding 30 W; c. A repetition rate greater than 1 kHz; and d. Pulse width less than 100 ns. *Notes:* *1. This item does not cover single mode oscillators.* *2. This item does not cover "tunable" pulsed dye "laser" amplifiers and oscillators defined in item 6A205.c, 0B001.g.5 and 6A005.*	6A205.c
II.A6.012	Pulsed carbon dioxide "lasers" having all of the following characteristics: 1. Operating at wavelengths between 9 000 nm and 11 000 nm; 2. A repetition rate greater than 250 Hz; 3. An average output power greater than 100 W but not exceeding 500 W; and 4. Pulse width less than 200 ns. *Note: This item does not cover pulsed carbon dioxide "laser" amplifiers and oscillators defined in item 6A205.d., 0B001.h.6. and 6A005.d.*	6A205.d

A6. Sensors and Lasers

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A6.013	Copper vapour “lasers” having both of the following characteristics: 1. Operating at wavelengths between 500 and 600 nm; and 2. An average output power equal to or greater than 15 W.	6A005.b
II.A6.014	Pulsed carbon monoxide “lasers” having all of the following characteristics: 1. Operating at wavelengths between 5 000 and 6 000 nm; 2. A repetition rate greater than 250 Hz; 3. An average output power greater than 100 W; and 4. Pulse width of less than 200 ns. *Note: This item does not control the higher power (typically 1 to 5 kW) industrial carbon monoxide “lasers” used in applications such as cutting and welding, as these latter “lasers” are either continuous wave or are pulsed with a pulse width greater than 200 ns.*	

A7. Navigation and Avionics

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A7.001	Inertial navigation systems and specially designed components thereof, as follows: I. Inertial navigation systems which are certified for use on “civil aircraft” by civil authorities of a State participating in the Wassenaar Arrangement, and specially designed components thereof, as follows: a. Inertial navigation systems (INSs) (gimballed or strapdown) and inertial equipment designed for “aircraft”, land vehicle, vessels (surface or underwater) or “spacecraft” for attitude, guidance or control, having any of the following characteristics, and specially designed components thereof: 1. Navigation error (free inertial) subsequent to normal alignment of 0,8 nautical mile per hour (nm/hr) “Circular Error Probable” “(CEP)” or less (better); or	7A003 7A103

A7. Navigation and Avionics		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	2. Specified to function at linear acceleration levels exceeding 10 g; b. Hybrid Inertial Navigation Systems embedded with Global Navigation Satellite Systems(s) (GNSS) or with "Data-Based Referenced Navigation" ("DBRN") System(s) for attitude, guidance or control, subsequent to normal alignment, having an INS navigation position accuracy, after loss of GNSS or "DBRN" for a period of up to four minutes, of less (better) than 10 metres "CEP"; c. Inertial Equipment for Azimuth, Heading, or North Pointing having any of the following characteristics, and specially designed components thereof: 1. Designed to have an Azimuth, Heading, or North Pointing accuracy equal to, or less (better) than 6 arc/ minutes RMS at 45 degrees latitude; or 2. Designed to have a non-operating shock level of at least 900 g at a duration of at least 1 msec. *Note: The parameters of I.a. and I.b. are applicable with any of the following environmental conditions:* *1. Input random vibration with an overall magnitude of 7,7 g rms in the first half hour and a total test duration of one and a half hours per axis in each of the three perpendicular axes, when the random vibration meets the following:* *a. A constant power spectral density (PSD) value of 0,04 g^2/Hz over a frequency interval of 15 to 1 000 Hz; and* *b. The PSD attenuates with a frequency from 0,04 g^2/Hz to 0,01 g^2/Hz over a frequency interval from 1 000 to 2 000 Hz;* *2. A roll and yaw rate equal to or greater than + 2,62 radian/s (150 deg/s); or* *3. According to national standards equivalent to 1. or 2. above.*	

A7. Navigation and Avionics		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	Technical Note: *I.b. refers to systems in which an INS and other independent navigation aids are built into a single unit (embedded) in order to achieve improved performance.* II. Theodolite systems incorporating inertial equipment specially designed for civil surveying purposes and designed to have an Azimuth, Heading, or North Pointing accuracy equal to, or less (better) than 6 arc minutes RMS at 45 degrees latitude, and specially designed components thereof. III. Inertial or other equipment using accelerometers specified in 7A001 or 7A101, where such accelerometers are specially designed and developed as MWD (Measurement While Drilling) sensors for use in downhole well services operations.	

A9. Aerospace and Propulsion		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.A9.001	Explosive bolts.	—

II.B. TECHNOLOGY

No	Description	Related item from Annex I to Regulation (EU) 2021/821
II.B.001	Technology required for the development, production, or use of the items in Part II.A. (Goods) above. *Technical Note:* *The term "technology" includes software.*	—

ANNEX IIa

Goods and technology referred to in Article 3(1), 3(3) and 3(5), Article 5(2), Article 8(4), Article 18(1), Article 31(1) and Article 45

INTRODUCTORY NOTES

1. Unless otherwise stated, reference numbers used in the column below entitled "Description" refer to the descriptions of dual use items and technology set out in Annex I to Regulation (EU) 2021/821.

2. A reference number in the column below entitled "Related item from Annex I to Regulation (EU) 2021/821" means that the characteristics of the item described in the "Description" column lie outside the parameters set out in the description of the dual use entry referred to.

3. Definitions of terms between "single quotation marks" are given in a technical note to the relevant item.

4. Definitions of terms between "double quotation marks" can be found in Annex I to Regulation (EU) 2021/821.

GENERAL NOTES

1. The object of the controls contained in this Annex should not be defeated by the export of any non-controlled goods (including plant) containing one or more controlled components when the controlled component or components is/are the principal element of the goods and can feasibly be removed or used for other purposes.

N.B.: *In judging whether the controlled component or components is/are to be considered the principal element, it is necessary to weigh the factors of quantity, value and technological know-how involved and other special circumstances which might establish the controlled component or components as the principal element of the goods being procured.*

2. The goods specified in this Annex include both new and used goods.

GENERAL TECHNOLOGY NOTE (GTN)

1. The sale, supply, transfer or export of "technology" which is "required" for the "use" of goods the sale, supply, transfer or export of which is controlled in Part A (Goods) below, is controlled in accordance with the provisions of Section III.B.

2. The sale, supply, transfer or export of "technology" which is "required" for the "development" or "production" of goods the sale, supply, transfer or export of which is controlled in Part A (Goods) below, is prohibited in accordance with the provisions of Annex II, Section II.B.

3. The "technology" "required" for the "use" of goods under control remains under control even when it is applicable to non-controlled goods.

4. Controls do not apply to that "technology" which is the minimum necessary for the installation, operation, maintenance (checking) and repair of those goods which are not controlled or the export of which has been authorised in accordance with Regulation (EC) No 423/2007, Regulation (EU) No 961/2010 or this Regulation.

5. Controls on "technology" transfer do not apply to information "in the public domain", to "basic scientific research" or to the minimum necessary information for patent applications.

III.A. GOODS

A0. Nuclear Materials, Facilities, and Equipment

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A0.015	"Glove Boxes", specially designed for radioactive isotopes, radioactive sources or radionuclides. *Technical Note:* *"Glove Boxes" means equipment providing protection to the user, from hazardous vapour, particles or radiation, from materials inside the equipment being handled or processed by a person outside the equipment, by means of manipulators or gloves integrated into the equipment.*	0B006
III.A0.016	Toxic gas monitoring systems designed for continuous operation and detection of hydrogen sulphide, and specially designed detectors therefore.	0A001 0B001.c
III.A0.017	Helium leak detectors.	0A001 0B001.c

A1. Materials, chemicals, "micro-organisms" and "toxins"

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A1.003	Ring-shaped seals and gaskets, having an inner diameter of 650 mm or less, made of any of the following materials: a. Copolymers of vinylidene fluoride having 75 % or more beta crystalline structure without stretching; 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; d. Polychlorotrifluoroethylene (PCTFE, e.g. Kel-F ®); e. Fluoro-elastomers (e.g. Viton ®, Tecnoflon ®); f. Polytetrafluoroethylene (PTFE).	

A1. Materials, chemicals, “micro-organisms” and “toxins”		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A1.004	Personal equipment for detecting radiation of nuclear origin, including personal dosimeters. *Note: This item does not cover nuclear detection systems defined in item 1A004.c.*	1A004.c
III.A1.020	Steel alloys in sheet or plate form, having any of the following characteristics: (a) Steel alloys “capable of” ultimate tensile strength of 1 200 MPa or more, at 293 K (20 °C); or (b) Nitrogen-stabilised duplex stainless steel. *Note: The phrase alloys “capable of” encompasses alloys before or after heat treatment.* *Technical Note:* *“Nitrogen-stabilised duplex stainless steel” has a two-phase microstructure consisting of grains of ferritic and austenitic steel with the addition of nitrogen to stabilise the microstructure.*	1C116 1C216
III.A1.021	Carbon-Carbon composite material.	1A002.b.1
III.A1.022	Nickel alloys in crude or semi-fabricated form, containing 60 % by weight or more nickel.	1C002.c.1.a
III.A1.023	Titanium alloys in sheet or plate form “capable of” an ultimate tensile strength of 900 MPa or more at 293 K (20 °C). *Note: The phrase alloys “capable of” encompasses alloys before or after heat treatment.*	1C002.b.3
III.A1.024	Propellants and constituent chemicals for propellants as follows: a. Toluene Diisocyanate (TDI); b. Methyl Diphenyl Diisocyanate (MDI); c. Isophorone Diiscocyanate (IPDI); d. Sodium perchlorate; e. Xylidine;	1C111

A1. Materials, chemicals, “micro-organisms” and “toxins”

No	Description	Related item from Annex I to Regulation (EU) 2021/821
	f. Hydroxy Terminated Polyether (HTPE); or g. Hydroxy Terminated Caprolactone Ether (HTCE). *Technical Note:* *This item refers to pure substance and any mixture containing at least 50 % of one of the chemicals mentioned above.*	
III.A1.025	“Lubricating materials” containing, as their principal ingredients, any of the following: a. Perfluoroalkylether, (CAS 60164-51-4); b. Perfluoropolyalkylether, PFPE, (CAS 6991-67-9). *Technical Note:* *“Lubricating materials” means oils and fluids.*	1C006
III.A1.026	Beryllium-copper or copper-beryllium alloys in plate, sheet, strip or rolled bar form, having a composition comprising copper as the major element by weight and other elements including less than 2 % by weight beryllium.	1C002.b

A2. Materials Processing

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A2.008	Liquid-liquid contacting equipment (mixer-settlers, pulsed columns, centrifugal contactors); and liquid distributors, vapour distributors or liquid collectors designed for such equipment, where all surfaces that come in direct contact with the chemical(s) being processed are made from stainless steel. *N.B. see also II.A2.014.* *Note: for stainless steel with more than 25 % nickel and 20 % chromium by weight see entry II.A2.014.a*	2B350.e
III.A2.009	Industrial equipment and components, other than those specified in 2B350.d, as follows: *N.B. see also II.A2.015.* Heat exchangers or condensers with a heat transfer surface area greater than 0,05 m^2, and less than 30 m^2; and tubes, plates, coils or blocks (cores) designed for such heat exchangers or condensers, where all surfaces that come in direct contact with the fluid(s) are made from stainless steel.	2B350.d

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
	Note 1: For stainless steel with more than 25 % nickel and 20 % chromium by weight see entry II.A2.015a. *Note 2: This item does not cover vehicle radiators.* *Technical Note:* *The materials used for gaskets and seals and other implementation of sealing functions do not determine the status of control of the heat exchanger.*	
III.A2.010	Multiple-seal, and seal-less pumps, other than those specified in 2B350.i, suitable for corrosive fluids, with manufacturer's specified maximum flow-rate greater than 0,6 m^3/hour, or vacuum pumps with manufacturer's specified maximum flow-rate greater than 5 m^3/hour [measured under standard temperature (273 K or 0 °C) and pressure (101,3 kPa) conditions]; and casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for such pumps, in which all surfaces that come in direct contact with the chemical(s) being processed are made from stainless steel. *N.B. see also II.A2.016.* *Note: for stainless steel with more than 25 % nickel and 20 % chromium by weight see entry II.A2.016a.* *Technical Note:* *The materials used for gaskets and seals and other implementation of sealing functions do not determine the status of control of the pump.*	2B350.i
III.A2.017	Electrical Discharge Machine (EDM) tools for removing or cutting metals, ceramics or "composites", as follows, and specially designed ram, sinker or wire electrodes therefor: a. Ram or sinker electrode Electrical Discharge Machines; b. Wire electrode Electrical Discharge Machines. *Note: Electrical Discharge Machines are also known as Spark Erosion Machines or Wire Erosion Machines.*	2B001.d
III.A2.018	Computer controlled or "numerically controlled" co-ordinate measuring machines (CMM), or dimensional inspection machines, having a three dimensional (volumetric) maximum permissible error of indication (MPP_E) at any point in the operating range of the machine (i.e. within the length axes) equal to or less (better) than (3 + L/1 000) µm (L is the measured length in mm), tested according to ISO 10360-2 (2001), and measurement probes designed therefor.	2B006.a 2B206.a

A2. Materials Processing		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A2.019	Computer controlled or "numerically controlled" Electron Beam Welding Machines, and specially designed components therefor.	2B001.e.1.b
III.A2.020	Computer controlled or "numerically controlled" Laser Welding and Laser Cutting Machines, and specially designed components therefor.	2B001.e.1.c
III.A2.021	Computer controlled or "numerically controlled" Plasma Cutting Machines, and specially designed components therefor.	2B001.e.1
III.A2.022	Vibration Monitoring Equipment specially designed for rotors or rotating equipment and machinery, capable of measuring any frequency in the range 600-2 000 Hz.	2B116
III.A2.023	Liquid ring vacuum pumps, and specially designed components therefore.	2B231 2B350.i
III.A2.024	Rotary vane vacuum pumps, and specially designed components therefore. *Note 1: III.A2.024 does not control rotary vane vacuum pumps that are specially designed for specific other equipment.* *Note 2: The control status of rotary vane vacuum pumps that are specially designed for specific other equipment is determined by the control status of the other equipment.*	2B231 2B235.i 0B002.f
III.A2.025	Air filters, as follows, having one or more physical size dimension exceeding 1 000 mm: a. High Efficiency Particulate Air (HEPA) filters; b. Ultra-Low Penetration Air (ULPA) filters. *Note: III.A2.025 does not control air filters specially designed for medical equipment.*	2B352.d

A3. Electronics

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A3.004	Spectrometers and diffractometers, designed for the indicative test or quantitative analysis of the elemental composition of metals or alloys without chemical decomposition of the material.	
III.A3.005	"Frequency changers", frequency generators and variable speed electrical drives, having all the following characteristics: a. Multiphase output power of 10 W or greater; b. Capable of operating at a frequency of 600 Hz or more; and c. Frequency control better (less) than 0,2 %. *Technical Note:* *"Frequency Changers" includes frequency converters and frequency inverters.* *Notes:* *1. Item III.A3.005 does not control frequency changers that include communication protocols or interfaces designed for specific industrial machinery (such as machine tools, spinning machines, printed circuit board machines) so that the frequency changers cannot be used for other purposes while meeting the performance characteristics above.* *2. Item III.A3.005 does not control frequency changers specially designed for vehicles and which operate with a control sequence that is mutually communicated between the frequency changer and the vehicle control unit.*	3A225 0B001.b.13

A6. Sensors and Lasers

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A6.012	"Vacuum pressure gauges", being electrically powered and having measurement accuracy of 5 % or less (better). *Technical Note:* *"Vacuum pressure gauges" include Pirani Gauges, Penning Gauges and Capacitance Manometers.*	0B001.b
III.A6.013	Microscopes and related equipment and detectors, as follows: a. Scanning Electron Microscopes; b. Scanning Auger Microscopes; c. Transmission Electron Microscopes;	6B

A6. Sensors and Lasers

No	Description	Related item from Annex I to Regulation (EU) 2021/821
	d. Atomic Force Microscopes; e. Scanning Force Microscopes; f. Equipment and detectors, specially designed for use with the microscopes specified in III.A6.013 a) to e) above, employing any of the following materials analysis techniques: 1. X-ray Photo Spectroscopy (XPS); 2. Energy-dispersive X-ray Spectroscopy (EDX, EDS); or 3. Electron Spectroscopy for Chemical Analysis (ESCA).	

A7. Navigation and Avionics

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A7.002	Accelerometers containing piezoelectric ceramic transducer element, having a sensitivity of 1 000 mV/g or better (higher)	7A001

A9. Aerospace and Propulsion

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A9.002	"Load Cells" capable of measuring rocket motor thrust having a capacity exceeding 30 kN. *Technical Note:* *"Load Cells" means devices and transducers for the measurement of force in both tension and in compression.* *Note: III.A9.002 does not include equipment, devices or transducers, specially designed for the measurement of the weight of vehicles, e.g. weigh bridges.*	9B117

A9. Aerospace and Propulsion		
No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.A9.003	Electrical power generation gas turbines, components and related equipment as follows: a. Gas turbines specially designed for electrical power generation, having an output exceeding 200 MW; b. Vanes, stators, combustion chambers and fuel injection nozzles, specially designed for electrical power generation gas turbines specified in III.A9.003.a; c. Equipment specially designed for the "development" and "production" of electrical power generation gas turbines specified in III. A9.003.a.	9A001 9A002 9A003 9B001 9B003 9B004

III.B. TECHNOLOGY

No	Description	Related item from Annex I to Regulation (EU) 2021/821
III.B.001	"Technology" required for the use of the items in Part III.A. (Goods) above. *Technical Note:* *The term "technology" includes software.'*	

(2) Annexes IVa to VI are replaced by the following:

'ANNEX IVa

Products referred to in Article 14a and Article 31(1) Natural gas and other gaseous hydrocarbons

HS code	Description
2709 00 10	Natural gas condensates
2711 11 00	Natural Gas – in liquefied state
2711 21 00	Natural Gas – in gaseous state
2711 12	Propane
2711 13	Butanes
2711 19 00	Other liquefied petroleum gases

ANNEX V

List of “petrochemical products” referred to in Article 13 and Article 31(1)

HS code	Description
2812 11 00	Phosgene (carbonyl chloride)
2814	Ammonia
2901 21 00	Ethylene
2901 22 00	Propene (propylene)
2902 20 00	Benzene
2902 30 00	Toluene
2902 41 00	*o*-Xylene
2902 42 00	*m*-Xylene
2902 43 00	*p*-Xylene
2902 44 00	Mixed xylene isomers
2902 50 00	Styrene
2902 60 00	Ethyl benzene
2902 70 00	Cumene
2903 11 00	Chloromethane (methyl chloride) and chloroethane (ethyl chloride)
2903 29 00	Unsaturated chlorinated derivatives of acyclic hydrocarbons - other
2903 81 00	1,2,3,4,5,6-Hexachlorocyclohexane (HCH (ISO)), including lindane (ISO, INN)
2903 82 00	Aldrin (ISO), chlordane (ISO) and heptachlor (ISO)
2903 89 70	- Halogenated derivatives of cyclanic, cyclenic or cycloterpenic hydrocarbons; -- Other; --- Other

HS code	Description
2903 91 00	Chlorobenzene, o-dichlorobenzene and p-dichlorobenzene
2903 92 00	Hexachlorobenzene (ISO) and DDT (ISO) [clofenotane (DCI), 1,1,1-trichloro-2,2-bis (p-chlorophenyl)ethane]
2903 99 80	- Halogenated derivatives of aromatic hydrocarbons; -- Other; --- Other
2905 11 00	Methanol (methyl alcohol)
2905 12 00	Propan-1-ol (propyl alcohol) and propan-2-ol (isopropyl alcohol)
2905 13 00	Butan-1-ol (n-butyl alcohol)
2905 31 00	Ethylene glycol (ethanediol)
2907 11 – 2907 19	Phenols
2909	Ether-alcohols, ether-phenols, ether-alcohol-phenols, alcohol peroxides, ether peroxides, acetal and hemiacetal peroxides, ketone peroxides (whether or not chemically defined), and their halogenated, sulphonated, nitrated or nitrosated derivatives
2909 41 00	2, 2′-Oxydiethanol (diethylene glycol, digol)
2909 43 00	Monobutyl ethers of ethylene-glycol or diethylene glycol
2909 44 00	Other monoalkyl ethers of ethylene-glycol or diethylene glycol
2909 49	Other ether-alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives
2910 10 00	Oxirane (ethylene oxide)
2910 20 00	Methyloxirane (propylene oxide)
2914 11 00	Acetone
2917 14 00	Maleic anhydride (MA)
2917 35 00	Phthalic anhydride (PA)
2917 36 00	Terephthalic acid and its salts

HS code	Description
2917 37 00	Dimethyl terephthalate (DMT)
2926 10 00	Acrylonitrile
ex 2929 10 00	Methylene diphenyl diisocyanate (MDI)
ex 2929 10 00	Hexamethylene diisocyanate (HDI)
ex 2929 10 00	Toluene diisocyanate (TDI)
3102 30	Ammonium Nitrate
3901	Polymers of ethylene, in primary forms

HS code	Description
2707 10 00	Benzol (benzene)
2707 20 00	Toluol (toluene)
2707 30 00	Xylol (xylenes)
2707 40 00	Naphthalene
2707 99 80	Phenols
2711 14 00	Ethylene, propylene, butadiene

ANNEX VI

List of key equipment and technology referred to in Articles 8 and 31(1)

GENERAL NOTES

1. The object of the prohibitions contained in this Annex should not be defeated by the export of any non-prohibited goods (including plant) containing one or more prohibited components when the prohibited component or components are the principal element of the goods and can feasibly be removed or used for other purposes.

N.B.: *In judging whether the prohibited component or components are to be considered the principal element, it is necessary to weigh the factors of quantity, value and technological know-how involved and other special circumstances which might establish the prohibited component or components as the principal element of the goods being procured.*

2. The goods specified in this Annex include both new and used goods.

3. Definitions of terms between "single quotation marks" are given in a technical note to the relevant item.

4. Definitions of terms between "double quotation marks" can be found in Annex I to Regulation (EU) 2021/821.

GENERAL TECHNOLOGY NOTE (GTN)

1. The "technology" "required" for the "development", "production" or "use" of prohibited goods remains under prohibition even when applicable to non-prohibited goods.

2. Prohibitions do not apply to that "technology" which is the minimum necessary for the installation, operation, maintenance (checking) and repair of those goods which are not prohibited or the export of which has been authorised in accordance with Regulation (EC) No 423/2007, Regulation (EU) No 961/2010 or this Regulation.

3. Prohibitions on "technology" transfer do not apply to information "in the public domain", to "basic scientific research" or to the minimum necessary information for patent applications.

EXPLORATION AND PRODUCTION OF CRUDE OIL AND NATURAL GAS

1.A *Equipment*

1. Geophysical survey equipment, vehicles, vessels and aircraft specially designed or adapted to acquire data for oil and gas exploration and specially designed components therefore.

2. Sensors specially designed for downhole well operations in oil and gas wells, including sensors used for measurement whilst drilling and the associated equipment specially designed to acquire and store data from such sensors.

3. Drilling equipment designed to drill rock formations, specifically for the purpose of exploring for, or producing oil, gas and other naturally occurring, hydrocarbon materials.

4. Drill bits, drill pipes, drill collars, centralisers and other equipment, specially designed for use in and with oil and gas well drilling equipment.

5. Drilling wellheads, "blowout preventers" and "Christmas or production trees" and the specially designed components thereof, meeting the "API and ISO specifications" for use with oil and gas wells.

Technical Notes:

a. A "blowout preventer" is a device typically used at ground level (or if drilling underwater, at the seabed) during drilling to prevent the uncontrolled escape of oil and/or gas from the well.

b. A "Christmas tree or production tree" is a device typically used to control flow of fluids from the well when it is complete and oil and/or gas production has started.

c. For the purpose of this item, "API and ISO specifications" refers to the American Petroleum Institute specifications 6A, 16A, 17D and 11IW and/or the International Standards Organisation specifications 10423 and 13533 for blowout preventers, wellhead and Christmas trees for use on oil and/or gas wells.

6. Drilling and production platforms for crude oil and natural gas.

7. Vessels and barges incorporating drilling and/or petroleum processing equipment used for producing oil, gas and other naturally occurring flammable materials.

8. Liquid/gas separators meeting API specification 12J, specially designed to process the production from an oil or gas well, to separate the petroleum liquids from any water and any gas from the liquids.

9. Gas compressor with a design pressure of 40 bar (PN 40 and/or ANSI 300) or more and having a suction volume capacity of 300 000 Nm^3/h or more, for the initial processing and transmission of natural gas, excluded gas compressors for CNG (Compressed Natural Gas) filling stations, and specially designed components therefore.

10. Subsea production control equipment and the components thereof meeting "API and ISO specifications" for use with oil and gas wells.

Technical Note:

For the purposes of this entry, "API and ISO specifications" refers to the American Petroleum Institute specification 17 F and/or the International Standards Organisation specification 13268 for subsea production control systems.

11. Pumps, typically high capacity and/or high pressure (in excess of 0,3 m^3 per minute and/or 40 bar), specially designed to pump drilling muds and/or cement into oil and gas wells.

1.B *Test and inspection equipment*

1. Equipment specially designed for sampling, testing and analysing the properties of drilling mud, oil well cements and other materials specially designed and/or formulated for use in oil and gas wells.

2. Equipment specially designed for sampling, testing and analysing the properties of rock samples, liquid and gaseous samples and other materials taken from an oil and/or gas well either during or after drilling, or from the initial processing facilities attached thereto.

3. Equipment specially designed for collecting and interpreting information about the physical and mechanical condition of an oil and/or gas well, and for determining the *in situ* properties of the rock and reservoir formation.

1.C *Materials*

1. Drilling mud, drilling mud additives and the components thereof, specially formulated to stabilise oil and gas wells during drilling, to recover drill cuttings to the surface and to lubricate and cool the drilling equipment in the well.

2. Cements and other materials meeting the "API and ISO specifications" for use in oil and gas wells.

Technical Note:

"API and ISO specification" refers to the American Petroleum Institute specification 10A or the International Standards Organisation specification 10426 for oil well cements and other materials specially formulated for use in the cementing of oil and gas wells.

3. Corrosion inhibiting, emulsion treatment, defoaming agents and other chemicals specially formulated to be used in the drilling for, and the initial processing of, petroleum produced from an oil and/or gas well.

1.D *Software*

1. "Software" specially designed to collect and interpret data acquired from seismic, electromagnetic, magnetic or gravity surveys for the purpose of establishing oil or gas prospectivity.

2. "Software" specially designed for storing, analysing and interpreting information acquired during drilling and production to assess the physical characteristics and behaviour of oil or gas reservoirs.

3. "Software" specially designed for the "use" of petroleum production and processing facilities or specific sub-units of such facilities.

1.E *Technology*

1. "Technology" "required" for the "development", "production" and "use" of equipment specified in 1.A.01 – 1.A.11.

REFINING OF CRUDE OIL AND LIQUEFACTION OF NATURAL GAS

2.A *Equipment*

1. Heat exchangers as follows and specially designed components therefore:

   a. Plate-fin heat exchangers with a surface/volume ratio greater than 500 m^2/m^3, specially designed for pre-cooling of natural gas;

   b. Coil-wound heat exchangers specially designed for liquefaction or sub-cooling of natural gas.

2. Cryogenic pumps for the transport of media at a temperature below – 120 °C having a transport capacity of more than 500 m^3/h and specially designed components therefore.

3. "Coldbox" and "coldbox" equipment not specified by 2.A.1.

Technical Note:

"Coldbox" equipment refers to a specially designed construction, which is specific for LNG plants and incorporates the process stage of liquefaction. The "coldbox" comprises heat exchangers, piping, other instrumentation and thermal insulators. The temperature inside the "coldbox" is below – 120 °C (conditions for condensation of natural gas). The function of the "coldbox" is the thermal insulation of the above described equipment.

4. Equipment for shipping terminals of liquefied gases having a temperature below – 120 °C and specially designed components therefore.

5. Flexible and non-flexible transfer line having a diameter greater than 50 mm for the transport of media below – 120 ° C.

6. Maritime vessels specially designed for the transport of LNG.

7. Electrostatic desalters specially designed to remove contaminants such as salts, solids and water from crude oil and specially designed components therefore.

8. All crackers, including hydrocrackers, and cokers, specially designed for conversion of vacuum gas oils or vacuum residuum, and specially designed components therefore.

9. Hydrotreaters specially designed for desulphurisation of gasoline, diesel cuts and kerosene and specially designed components therefore.

10. Catalytic reformers specially designed for conversion of desulphurised gasoline into high-octane gasoline, and specially designed components therefore.

11. Refinery units for C5-C6 cuts isomerisation, and refinery units for alkylation of light olefins, to improve the octane index of the hydrocarbon cuts.

12. Pumps specially designed for the transport of crude oil and fuels, having a capacity of 50 m^3/h or more and specially designed components therefore.

13. Tubes with an outer diameter of 0,2 m or more and made from any of the following materials:

    a. Stainless steels with 23 % chromium or more by weight;

    b. Stainless steels and nickel bases alloys with a "Pitting resistance equivalent" number higher than 33.

Technical Note:

*"Pitting resistance equivalent" (PRE) number characterises the corrosion resistance of stainless steels and nickel alloys to pitting or crevice corrosion. The pitting resistance of stainless steels and nickel alloys is primarily determined by their compositions, primarily: chromium, molybdenum, and nitrogen. The formula to calculate the PRE number is: PRE = % Cr + 3,3 * % Mo + 30 * % N*

14. "Pigs" (Pipeline Inspection Gauge(s)) and specially designed components therefore.

15. “Pig” launchers and “pig” catchers for the integration or removing of “pigs”

Technical Note:

“Pig” is a device typically used for cleaning or inspection of a pipeline from inside (corrosion state or crack formation) and is propelled by the pressure of the product in the pipeline.

16. Tanks for the storage of crude oil and fuels with a volume greater than 1 000 m^3 (1 000 000 litres) as follows, and specially designed components therefore:

a. fixed roof tanks;

b. floating roof tanks.

17. Subsea flexible pipes specially designed for the transportation of hydrocarbons and injection fluids, water or gas, having a diameter greater than 50 mm.

18. Flexible pipes used for high pressure for topside and subsea application.

19. Isomeration equipment specially designed for production of high-octane gasoline based on light hydrocarbons as feed, and specially designed components therefore.

2.B *Test and inspection equipment*

1. Equipment specially designed for testing and analysing of quality (properties) of crude oil and fuels.

2. Interface control systems specially designed for controlling and optimising of the desalting process.

2.C *Materials*

1. Diethyleneglycol (CAS 111-46-6), triethylene glycol (CAS 112-27-6)

2. N-Methylpyrrolidone (CAS 872-50-4), sulfolane (CAS 126-33-0)

3. Zeolites, of natural or synthetic origin, specially designed for fluid catalytic cracking or for the purification and/or dehydration of gases, including natural gases.

4. Catalysts for the cracking and conversion of hydrocarbons as follows:

a. Single metal (platinum group) on alumina type or on zeolite, specially designed for catalytic reforming process;

b. Mixed metal species (platinum in combination with other noble metals) on alumina type or on zeolite, specially designed for catalytic reforming process;

c. Cobalt and nickel catalysts doped with molybdenum on alumina type or on zeolite, specially designed for catalytic desulphurisation process;

d. Palladium, nickel, chromium and tungsten catalysts on alumina type or on zeolite, specially designed for catalytic hydrocracking process.

5. Gasoline additives specially formulated for increasing the octane number of gasoline.

Note:

This entry includes Ethyl tertiary butyl ether (ETBE) (CAS 637-92-3) and Methyl tertiary butyl ether (MTBE) (CAS 1634-04-4).

2.D *Software*

1. "Software" specially designed for the "use" of LNG plants or specific sub-units of such plants.

2. "Software" specially designed for the "development", "production" or "use" of plants (including their sub-units) for oil refining.

2.E *Technology*

1. "Technology" "required" for the "development", "production" or "use" of equipment for the conditioning and purification of raw natural gas (dehydration, sweetening, removal of impurities).

2. "Technology" for the liquefaction of natural gas, including "technology" required for the "development", "production" or "use" of LNG plants.

3. "Technology" "required" for the "development", "production" or "use" of equipment for the shipment of liquefied natural gas.

4. "Technology" "required" for the "development", "production" or "use" of maritime vessels specially designed for the transport of liquefied natural gas.

5. "Technology" "required" for the "development", "production" or "use" of tanks for the storage of crude oil and fuels.

6. "Technology" "required" for the "development", "production" or "use" of a refinery plant, such as:

6.1. "Technology" for conversion of light olefin to gasoline;

6.2. Catalytic reforming and isomerisation technology;

6.3. Catalytic and thermal cracking technology.

PETROCHEMICAL INDUSTRY

3.A *Equipment*

1. Reactors

a. specially designed for production of phosgene (CAS 75-44-5) and specially designed components therefor;

b. for phosgenation specially designed for the production of HDI, TDI, MDI and specially designed components therefor, with the exception of secondary reactors;

c. specially designed for low pressure (up to max 40 bar) polymerisation of ethylene and propylene and specially designed components therefore;

d. specially designed for the thermal cracking of EDC (ethylene dichloride) and specially designed components therefor, with the exception of secondary reactors;

e. specially designed for chlorination and oxychlorination in the production of vinyl chloride and specially designed components therefor, with the exception of secondary reactors;

2. Thin film evaporators and falling film evaporators consisting of materials resistant to hot concentrated acetic acid and specially designed components therefor, and the relevant software developed therefor;

3. Plants for the separation of hydrochloric acid by electrolysis and specially designed components therefore, and the relevant software developed therefor;

4. Columns having a diameter larger than 5 000 mm and specially designed components therefor;

5. Ball valves and plug valves with ceramic balls or plugs, having a nominal diameter of 10 mm or more, and specially designed components therefor;

6. Centrifugal and/or reciprocating compressor having an installed power above 2 MW and meeting specification API 617 or API 618;

3.B *Test and inspection equipment*

3.C *Materials*

1. Catalysts applicable to processes of production of trinitrotoluene, ammonium nitrate and other chemical and petrochemical processes used for explosive manufacturing, and the relevant software developed therefor;

2. Catalysts used for the production of monomers such as ethylene and propylene (steam cracking units and/or Gas to petrochemicals units), and the relevant software developed therefor;

3.D *Software*

1. "Software" specially designed for the "development", "production" or "use" of equipment specified in 3.A;

2. "Software" specially designed for the "use" in methanol plants;

3.E *Technology*

1. "Technology" for the "development", "production" or "use" of Gas-To-Liquid (GTL) or Gas-To-Petrochemicals (GTP) processes or for GTL- or GTP- plants;

2. "Technology" "required" for the "development", "production" or "use" of equipment designed for the manufacture of ammonia and methanol plants;

3. "Technology" for the "production" of MEG (Mono ethylene glycol), EO (Ethylene oxide)/EG (Ethylene glycol)

Note:

"Technology" means specific information necessary for the "development", "production" or "use" of goods. This information takes the form of "technical data" or "technical assistance".';

(3) Annex VIb is replaced by the following:

'ANNEX VIb

Key equipment and technology referred to in Articles 10a, 10b and 10c and Article 31(1)

HS code	Description
8406 10	Steam and other vapour turbines for marine propulsion
ex 8406 90	Parts of steam turbines for marine propulsion
8407 21	Marine propulsion engines, outboard motors
ex 8407 29	Marine propulsion engines, other
8408 10	Marine propulsion engines
ex 8409 91 00	Parts suitable for use solely or principally with machines of subheadings 8407 21 or 8407 29
ex 8409 99 00	Parts suitable for use solely or principally with machines of subheading 8408 10°
ex 8411 81	Other gas turbine of a power not exceeding 5 000 kW, for marine propulsion
ex 8411 82	Other gas turbines of a power exceeding 5 000 kW, for marine propulsion
ex 8468	Machinery and apparatus for soldering, brazing or welding whether or not capable of cutting, other than those of heading 8515; gas-operated surface tempering machines and appliances
ex 8483	Transmission shafts (including cam shafts and crank shafts) and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws; gear boxes and other speed changers, including torque converters; flywheels and pulleys, including pulley blocks; clutches and shaft couplings (including universal joints), designed for the propulsion of vessels at the maximum possible deadweight tonnage at scantling draught of 55 000 dwt or more
8487 10	Ships' or boats' propellers and blades therefor

HS code	Description
ex 8515	Electric (including electrically heated gas), laser or other light or photon beam, ultrasonic, electron beam, magnetic pulse or plasma arc soldering, brazing or welding machines and apparatus, whether or not capable of cutting; electric machines and apparatus for hot spraying of metals or cermets
ex 9014 10 00	Direction finding compasses, solely for the maritime industry
ex 9014 80 00	Other navigational instruments and appliances, solely for the maritime industry
ex 9014 90 00	Parts and accessories of subheadings 9014 10 00 and 9014 80 00, solely for the maritime industry
ex 9015	Surveying (including photogram metrical surveying), hydro graphic, oceanographic, hydrological, meteorological or geophysical instruments and appliances, excluding compasses; rangefinders, solely for the maritime industry'

(4) Annex VIIb is replaced by the following:

'ANNEX VIIb

Graphite and raw or semi-finished metals referred to in Articles 15a, 15b and 15c and Article 31(1)

Introductory note: The inclusion of goods in this Annex is without prejudice to the rules applicable to the goods included in Annexes I, II and III.

1. Graphite	
HS code	Description
2504	Natural graphite
3801	Artificial graphite; colloidal or semi-colloidal graphite; preparations based on graphite or other carbon in the form of pastes, blocks, plates or other semi-manufactures
6815 11	Carbon fibres
6815 12	Fabrics of carbon fibres
6815 13	Other articles of carbon fibres
6815 19	Other articles of graphite or other carbon for non-electrical uses

1. Graphite

HS code	Description
6903 10	Other refractory ceramic goods (for example, retorts, crucibles, muffles, nozzles, plugs, supports, cupels, tubes, pipes, sheaths, rods and slide gates), other than those of siliceous fossil meals or of similar siliceous earths: containing, by weight, more than 50 % of free carbon
8545	Carbon electrodes, carbon brushes, lamp carbons, battery carbons and other articles of graphite or other carbon, with or without metal, of a kind used for electrical purposes

2. Iron and Steel

HS code	Description
7201	Pig iron and spiegeleisen in pigs, blocks or other primary forms
7202	Ferro-alloys
7203	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products, in lumps, pellets or similar forms; iron having a minimum purity by weight of 99,94 %, in lumps, pellets or similar forms
7204	Ferrous waste and scrap; remelting scrap ingots of iron or steel
7205	Granules and powders, of pig iron, spiegeleisen, iron or steel
7206	Iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203)
7207	Semi-finished products of iron or non-alloy steel
7218	Stainless steel in ingots or other primary forms; semi-finished products of stainless steel
7224	Other alloy steel in ingots or other primary forms; semi-finished products of other alloy steel

3. Copper and articles thereof	
HS code	Description
7401 00 00	Copper mattes; cement copper (precipitated copper)
7402 00 00	Unrefined copper; copper anodes for electrolytic refining
7403	Refined copper and copper alloys, unwrought
7404 00	Copper waste and scrap
7405 00 00	Master alloys of copper
7406	Copper powders and flakes
7407	Copper bars, rods and profiles
7410	Copper foil (whether or not printed or backed with paper, paperboard, plastics or similar backing materials) of a thickness (excluding any backing) not exceeding 0,15 mm
7413 00 00	Stranded wire, cables, plaited bands and the like, of copper, not electrically insulated

4. Nickel and articles thereof	
HS code	Description
7501	Nickel mattes, nickel oxide sinters and other intermediate products of nickel metallurgy
7502	Unwrought nickel
7503 00	Nickel waste and scrap
7504 00 00	Nickel powders and flakes
7505	Nickel bars, rods, profiles and wire
7506	Nickel plates, sheets, strip and foil
7507	Nickel tubes, pipes and tube or pipe fittings (for example, couplings, elbows, sleeves)

5. Aluminium	
HS code	Description
7601	Unwrought aluminium
7602	Aluminium waste and scrap
7603	Aluminium powders and flakes
7605	Aluminium wire
7606	Aluminium plates, sheets and strip, of a thickness exceeding 0,2 mm
7609 00 00	Aluminium tube or pipe fittings (for example, couplings, elbows, sleeves)
7614	Stranded wire, cables, plaited bands and the like, of aluminium, not electrically insulated

6. Lead	
HS code	Description
7801	Unwrought lead
7802 00 00	Lead waste and scrap
7804	Lead plates, sheets, strip and foil; lead powders and flakes

7. Zinc	
HS code	Description
7901	Unwrought zinc
7902 00 00	Zinc waste and scrap

7. Zinc	
HS code	Description
7903	Zinc dust, powders and flakes
7904 00 00	Zinc bars, rods, profiles and wire
7905 00 00	Zinc plates, sheets, strip and foil

8. Tin	
HS code	Description
8001	Unwrought tin
8002 00 00	Tin waste and scrap
8003 00 00	Tin bars, rods, profiles and wire

9. Other base metals, cermets, articles thereof	
HS code	Description
ex 8101	Tungsten (wolfram) and articles thereof, including waste and scrap, other than anti-cathodes for X-ray tubes
ex 8102	Molybdenum and articles thereof, including waste and scrap, other than articles specifically designed for use in dentistry
ex 8103	Tantalum and articles thereof, including waste and scrap, other than dental instruments and surgical tools and articles specially designed for orthopaedic and surgical purposes
8104	Magnesium and articles thereof, including waste and scrap
8105	Cobalt mattes and other intermediate products of cobalt metallurgy; cobalt and articles thereof, including waste and scrap
ex 8106	Bismuth and articles thereof, including waste and scrap, other than that specially prepared for the preparation of chemical compounds for pharmaceutical use
8108	Titanium and articles thereof, including waste and scrap
8109	Zirconium and articles thereof, including waste and scrap
8110	Antimony and articles thereof, including waste and scrap

9. Other base metals, cermets, articles thereof	
HS code	Description
8111 00	Manganese and articles thereof, including waste and scrap
ex 8112	Beryllium, chromium, hafnium, rhenium, thallium, cadmium, germanium, vanadium, gallium, indium and niobium (columbium), and articles of these metals, including waste and scrap other than windows for X-ray tubes
8113 00	Cermets and articles thereof, including waste and scrap’