

COUNCIL REGULATION (EU) 2023/427
of 25 February 2023
amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions
destabilising the situation in Ukraine

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) 2023/434 of 25 February 2023 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine ⁽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 31 July 2014, the Council adopted Regulation (EU) No 833/2014 ⁽²⁾ concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine.
- (2) Regulation (EU) No 833/2014 gives effect to certain measures provided for in Council Decision 2014/512/CFSP ⁽³⁾.
- (3) On 25 February 2023 the Council adopted Decision (CFSP) 2023/434, amending Decision 2014/512/CFSP.
- (4) Decision (CFSP) 2023/434 expands the list of entities directly supporting Russia's military and industrial complex in its war of aggression against Ukraine, on whom tighter export restrictions regarding dual-use goods and technology as well as goods and technology which might contribute to the technological enhancement of Russia's defence and security sector are imposed by adding 96 new entities to that list. Taking into account the direct connection between Iranian manufacturers of Unmanned Aerial Vehicles and the Russian military and industrial complex and the concrete risk that certain goods or technology are used for the manufacture of military systems that contribute to Russia's war of aggression against Ukraine, several Iranian entities have been added to the list of natural and legal persons, entities and bodies subject to restrictive measures set out in Annex IV to Decision 2014/512/CFSP.
- (5) It is appropriate to extend the list of restricted items which might contribute to Russia's military and technological enhancement or the development of its defence and security sector, by adding rare-earths and compounds, electronic integrated circuits and thermographic cameras, among others.
- (6) Decision (CFSP) 2023/434 extends the list of partner countries which are applying a set of export control measures substantially equivalent to those set out in Regulation (EU) No 833/2014.
- (7) Decision (CFSP) 2023/434 imposes further restrictions on exports of goods which could contribute in particular to the enhancement of Russian industrial capacities. Additionally, that Decision introduces further restrictions on imports of goods which generate significant revenues for Russia, thereby enabling the continuation of its war of aggression against Ukraine.
- (8) Furthermore, in order to minimise the risk of circumvention of the restrictive measures, Decision (CFSP) 2023/434 prohibits the transit via the territory of Russia of dual-use goods and technology and of arms exported from the Union.

⁽¹⁾ See page 593 of this Official Journal.

⁽²⁾ Council Regulation (EU) No 833/2014 of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine (OJ L 229 31.7.2014, p. 1).

⁽³⁾ Council Decision 2014/512/CFSP of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine (OJ L 229, 31.7.2014, p. 13).

- (9) Decision (CFSP) 2023/434 extends the suspension of broadcasting licences in the Union of Russian media outlets under the permanent control of the Russian leadership and the prohibition against broadcasting their content.
- (10) The Russian Federation has engaged in a systematic, international campaign of media manipulation and distortion of facts in order to enhance its strategy of destabilisation of its neighbouring countries and of the Union and its Member States. In particular, the propaganda has repeatedly and consistently targeted European political parties, especially during election periods, as well as civil society, asylum seekers, Russian ethnic minorities, gender minorities, and the functioning of democratic institutions in the Union and its Member States.
- (11) In order to justify and support its war of aggression against Ukraine, the Russian Federation has engaged in continuous and concerted propaganda actions targeted at civil society in the Union and neighbouring countries, gravely distorting and manipulating facts.
- (12) Those propaganda actions have been channelled through a number of media outlets under the permanent direct or indirect control of the leadership of the Russian Federation. Such actions constitute a significant and direct threat to the Union's public order and security. Those media outlets are essential and instrumental in bringing forward and supporting the war of aggression against Ukraine, and for the destabilisation of its neighbouring countries.
- (13) In view of the gravity of the situation, and in response to Russia's war of aggression against Ukraine, it is necessary, consistent with the fundamental rights and freedoms recognised in the Charter of Fundamental Rights, in particular with the right to freedom of expression and information as recognised in Article 11 thereof, to introduce further restrictive measures to suspend the broadcasting activities of such media outlets in the Union, or directed at the Union. The measures should be maintained until the aggression against Ukraine is put to an end, and until the Russian Federation, and its associated media outlets, cease to conduct propaganda actions against the Union and its Member States.
- (14) Consistent with the fundamental rights and freedoms recognised in the Charter of Fundamental Rights, in particular with the right to freedom of expression and information, the freedom to conduct a business and the right to property as recognised in Articles 11, 16 and 17 thereof, those measures do not prevent the media outlets and their staff from carrying out activities in the Union other than broadcasting, such as research and interviews. In particular, those measures do not modify the obligation to respect the rights, freedoms and principles referred to in Article 6 of the Treaty on European Union, including in the Charter of Fundamental Rights, and in Member States' constitutions, within their respective fields of application.
- (15) In order to ensure consistency with the process in Decision 2014/512/CFSP for suspending broadcasting licences, the Council should exercise implementing powers to decide, following an examination of the respective cases, whether the restrictive measures are to become applicable, on the date specified in this Regulation, in respect of several entities listed in Annex XV to Regulation (EU) No 833/2014.
- (16) Critical infrastructures and entities, as providers of essential services, play an indispensable role in the maintenance of vital societal functions or economic activities in the internal market in an increasingly interdependent Union economy. The Union framework is set out in Council Directive 2008/114/EC⁽⁴⁾, which is repealed with effect from 18 October 2024, on the identification and designation of European critical infrastructures and Directive (EU) 2022/2557 of the European Parliament and of the Council⁽⁵⁾ on the resilience of critical entities with the aim of both enhancing the resilience of critical entities in the internal market by harmonised minimum rules and assisting them by means of coherent and dedicated support and supervision measures.

⁽⁴⁾ Council Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection (OJ L 345, 23.12.2008, p. 75).

⁽⁵⁾ Directive (EU) 2022/2557 of the European Parliament and of the Council of 14 December 2022 on the resilience of critical entities and repealing Council Directive 2008/114/EC (OJ L 333, 27.12.2022, p. 164).

- (17) Russia's influence in such infrastructures and entities could jeopardise their well-functioning and ultimately constitute a hazard for the provision of essential services to European citizens. It is therefore appropriate to restrict the possibility to hold any posts in the governing bodies of those entities.
- (18) In accordance with the current legal framework, the new prohibition on holding any posts in the governing bodies applies to European critical infrastructures and critical infrastructures identified or designated as such under national law, as defined in Directive 2008/114/EC, which applies until 18 October 2024. As from 18 October 2024, the new prohibition will apply to critical entities and critical infrastructures, as defined in Directive (EU) 2022/2557. Directive (EU) 2022/2557 lays down an obligation for Member States to identify by 17 July 2026 in their national law the critical entities for the sectors and subsectors set out in the Annex thereto. Therefore, as from 17 July 2026, the new prohibition on holding any posts in the governing bodies will concern all the critical entities identified or designated as such by Member States.
- (19) Gas storage capacity being a critical asset for the security of supply of gas in the Union, Decision (CFSP) 2023/434 imposes a prohibition on providing gas storage capacity in the Union to Russian nationals, natural persons residing in Russia or legal persons or entities established in Russia. This is necessary in order to avoid Russia's weaponisation of its gas supply and risks of market manipulation that would be detrimental to the critical energy supply of the Union.
- (20) In order to avoid circumvention of and ensure compliance with the prohibition on any non-Russian-registered aircraft which is owned or chartered, or otherwise controlled by any Russian natural or legal person, entity or body from landing in, taking off from, or overflying, the territory of the Union, Decision (CFSP) 2023/434 introduces an obligation for aircraft operators to notify non-scheduled flights to their competent authorities. The Member State concerned should immediately inform other Member States, the Network Manager and the Commission where it does not clear such a flight.
- (21) Decision (CFSP) 2023/434 extends the duration of the exemption from the prohibition to enter into any transactions with certain Russian state-owned entities if such a transaction is strictly necessary for the wind-down of a joint venture or similar legal arrangement. It also extends the duration of the period in which the competent authorities of the Member States may authorise transactions which are necessary for the divestment and withdrawal by those Russian state-owned entities from Union companies.
- (22) In order to ensure uniform application of the prohibition of transactions relating to the management of reserves and assets of the Central Bank of Russia, it is appropriate to require that natural and legal persons, entities and bodies supply to the competent authorities of the Member States and simultaneously to the Commission information on such assets and reserves which they hold or control or are a counterparty to. It is also appropriate to specify the type of information to be provided and how this should be treated and used to ensure the uniform application of this reporting obligation. It should also be clarified that Member States and the relevant natural and legal persons, entities and bodies must cooperate with the Commission in any verification of such information and that the Commission may request any additional information, while informing the Member State concerned of such request. The obligation to report is ancillary to the effective application of the prohibition of the transactions related to the management of reserves and assets of the Central Bank of Russia and is without prejudice to the monetary functions and the principle of independence of the European Central Bank and the national central banks. In order to allow time to adapt, it is appropriate to provide for deferred application of the new reporting requirements.
- (23) In order to further facilitate divestment from the Russian market by Union operators, Decision (CFSP) 2023/434 introduces a temporary derogation from the prohibition on providing certain services set out in Regulation (EU) No 833/2014. In order to facilitate an expeditious exit from the Russian market, this derogation is temporary and limited in scope, enabling until 31 December 2023 the continuation of the provision of services to and for the exclusive benefit of the legal persons, entities or bodies resulting from the divestment. Additionally, the competent authorities of the Member States should ensure that the services are not provided to the Government of Russia or benefit military end-users or have a military-end use.

- (24) The Union is committed to avoiding threats to maritime safety. Consequently, Decision (CFSP) 2023/434 provides for certain exemptions for Union operators to provide pilot services to vessels in innocent passage as defined by international law which are necessary for reasons of maritime safety.
- (25) In order to ensure legal certainty concerning the treatment of imports, Decision (CFSP) 2023/434 provides for rules on the release by the customs authorities of the Member States of goods which are physically in the Union and which had already been presented to customs authorities when they became subject to such restrictions. This possibility applies regardless of the procedures under which the goods were placed after presentation to customs (transit, inward processing, release for free circulation etc.) or of the procedural steps and formalities pursuant to the Union Customs Code necessary for the release. Decision (CFSP) 2023/434 also authorises Member States to release goods already brought into the Union in the past. This is necessary for the benefit of Union operators that brought those goods into the Union in good faith at a time when they were not yet subject to any import restrictive measures, including when their import was still allowed during a wind-down period. The competent authorities of the Member States should ensure that the release of the goods and any payment related thereto comply with the provisions and objectives of Union restrictive measures. Similarly, any decision not to release such goods should comply with those objectives and ensure, among others, that the goods are not returned to Russia.
- (26) Finally, Decision (CFSP) 2023/434 makes certain technical corrections in the operative text of Decision 2014/512/CFSP.
- (27) These measures fall within the scope of the Treaty on European Union and, therefore, in particular with a view to ensuring their uniform application in all Member States, regulatory action at the level of the Union is necessary.
- (28) Regulation (EU) No 833/2014 should therefore be amended accordingly,

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) No 833/2014 is amended as follows:

- (1) in Article 1, the following points are added:

- (y) “critical entities” means entities as defined in Article 2(1) of Directive (EU) 2022/2557 of the European Parliament and of the Council (*);
- (z) “critical infrastructure” means infrastructure as defined in Article 2(a) of Council Directive 2008/114/EC (**) and Article 2(4) of Directive (EU) 2022/2557;
- (za) “European critical infrastructure” means infrastructure as defined in Article 2(b) of Directive 2008/114/EC;
- (zb) “owners or operators of critical infrastructures” means those entities responsible for investments in, and/or day-to-day operation of, a particular asset, system or part thereof designated as critical infrastructure or European critical infrastructure.

(*) Directive (EU) 2022/2557 of the European Parliament and of the Council of 14 December 2022 on the resilience of critical entities and repealing Council Directive 2008/114/EC (OJ L 333, 27.12.2022, p. 164).

(**) Council Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection (OJ L 345, 23.12.2008, p. 75).;

- (2) in Article 2, the following paragraphs are inserted:

‘1a. The transit via the territory of Russia of the dual-use goods and technology, as referred to in paragraph 1, exported from the Union shall be prohibited.

3a. Without prejudice to the authorisation requirements pursuant to Regulation (EU) 2021/821, the prohibition in paragraph 1a of this Article shall not apply to the transit via the territory of Russia of dual-use goods and technology intended for the purposes set out in points (a) to (e) of paragraph 3 of this Article.

4a. By way of derogation from paragraph 1a, and without prejudice to the authorisation requirements pursuant to Regulation (EU) 2021/821, the competent authorities may authorise the transit via the territory of Russia of dual-use goods and technology after having determined that such goods or technology are intended for the purposes set out in points (b), (c), (d), and (h) of paragraph 4 of this Article.;

(3) in Article 2aa, the following paragraph is inserted:

'1a. The transit via the territory of Russia of firearms, their parts and essential components and ammunition, as referred to in paragraph 1, exported from the Union shall be prohibited.;

(4) in Article 3c, the following paragraph is added:

'5c. With regard to the goods listed in Part D of Annex XI, the prohibitions in paragraphs 1 and 4 shall not apply to the execution until 27 March 2023 of contracts concluded before 26 February 2023, or of ancillary contracts necessary for the execution of such contracts.;

(5) in Article 3d, the following paragraphs are added:

'5. Aircraft operators of non-scheduled flights between Russia and the Union, operated directly or via a third country, shall notify all relevant information concerning the flight to their competent authorities prior to their operation, and at least 48 hours in advance.

6. Upon refusal of a flight notified in accordance with paragraph 5, the Member State concerned shall immediately inform the other Member States, the Network Manager and the Commission.;

(6) Article 3i is amended as follows:

(a) the following paragraphs are inserted:

'3d. With regard to the goods listed in Part C of Annex XXI, the prohibitions in paragraphs 1 and 2 shall not apply to the execution until 27 May 2023 of contracts concluded before 26 February 2023, or of ancillary contracts necessary for the execution of such contracts.

This provision does not apply to goods falling under CN codes 2803 and 4002 as listed in Part C of Annex XXI, to which paragraph 3da applies.

3da. The prohibitions in paragraphs 1 and 2 shall not apply to the import, purchase or transport, or related technical or financial assistance, necessary for the import into the Union, until 30 June 2024, of the following quantities:

(a) 752 475 metric tonnes for goods falling under CN code 2803;

(b) 562 973 metric tonnes for goods falling under CN code 4002.;

(b) paragraph 5 is replaced by the following:

'5. The import volume quotas set out in paragraphs 3da and 4 of this Article shall be managed by the Commission and the Member States in accordance with the management system for tariff-rate quotas provided for in Articles 49 to 54 of Commission Implementing Regulation (EU) 2015/2447 (*).

(*) Commission Implementing Regulation (EU) 2015/2447 of 24 November 2015 laying down detailed rules for implementing certain provisions of Regulation (EU) No 952/2013 of the European Parliament and of the Council laying down the Union Customs Code (OJ L 343, 29.12.2015, p. 558).;

(7) Article 3k is amended as follows:

(a) the following paragraphs are inserted:

‘3c. With regard to the goods listed in Part C of Annex XXIII, the prohibitions in paragraphs 1 and 2 shall not apply to the execution until 27 March 2023 of contracts concluded before 26 February 2023, or of ancillary contracts necessary for the execution of such contracts.

This provision does not apply to goods falling under CN codes 7208 25, 7208 90, 7209 25, 7209 28, 7219 24 as listed in Part C of Annex XXIII, to which paragraph 3 applies.

5b. By way of derogation from paragraphs 1 and 2, the competent authorities may authorise, under such conditions as they deem appropriate, the sale, supply, transfer or export of the goods listed in Part C of Annex XXIII, or related technical assistance, brokering services, financing or financial assistance, after having determined that it is strictly necessary for the production of titanium goods required in the aeronautic industry, for which no alternative supply is available.’;

(b) paragraphs 5a and 6 are replaced by the following:

‘5a. The competent authorities of the Member States may authorise, under such conditions as they deem appropriate, the sale, supply, transfer or export of the goods falling under CN code 8417 20, or the provision of related technical or financial assistance, after having determined that such goods or the provision of related technical or financial assistance are necessary for personal household use of natural persons.

6. When deciding on requests for authorisations referred to in paragraphs 5, 5a and 5b, the competent authorities shall not grant an authorisation for exports to any natural or legal person, entity or body in Russia or for use in Russia, if they have reasonable grounds to believe that the goods might have a military end-use.’;

(8) in Article 5a, the following paragraphs are inserted:

‘4a. Notwithstanding the applicable rules concerning reporting, confidentiality and professional secrecy, natural and legal persons, entities and bodies, including the European Central Bank, national central banks, financial sector entities as defined in Article 4 of Regulation (EU) No 575/2013 of the European Parliament and of the Council ⁽¹⁾*, insurance and reinsurance undertakings as defined in Article 13 of Directive 2009/138/EC of the European Parliament and of the Council ⁽²⁾*, central securities depositories as defined in Article 2 of Regulation (EU) No 909/2014 and central counterparties as defined in Article 2 of Regulation (EU) No 648/2012 of the European Parliament and of the Council ⁽³⁾* shall provide, no later than two weeks after 26 February 2023, to the competent authority of the Member State where they are resident or located, and simultaneously to the Commission, information on the assets and reserves referred to in paragraph 4 of this Article which they hold or control or are a counterparty to. Such information shall be updated every three months and shall at least cover the following:

(a) information identifying the natural or legal persons, entities or bodies owning, holding or controlling such assets and reserves, including the name, address and VAT registration or tax identification number;

(b) the amount or market value of such assets and reserves at the date of reporting and at the date of immobilisation;

(c) types of the assets and reserves, broken down according to the categories set out in points (i) to (vii) of Article 1(g) of Council Regulation (EU) 269/2014 ⁽⁴⁾* as well as crypto-assets and other relevant categories, and an additional category corresponding to economic resources within the meaning of Article 1(d) of Regulation (EU) 269/2014. For each of those categories and where available, relevant features, such as quantity, location, currency, maturity and contractual conditions between the reporting entity and the asset owner shall be indicated.

4b. Where the reporting natural or legal person, entity or body has established an extraordinary and unforeseen loss or damage to the assets and reserves referred to in paragraph 4a, this information shall be reported immediately to the competent authority of the relevant Member State and transmitted simultaneously to the Commission.

4c. Member States, as well as the natural and legal persons, entities and bodies covered by the reporting obligation set out in paragraph 4a, shall cooperate with the Commission in any verification of the information received pursuant to that paragraph. The Commission may request any additional information it requires to carry out such verification. When such a request is addressed to a natural or legal person, entity or body, the Commission shall simultaneously transmit it to the competent authority of the relevant Member State. Any additional information received directly by the Commission shall be made available to the competent authority of the relevant Member State.

4d. Any information provided to or received by the Commission and the competent authorities of the Member States in accordance with this Article shall be used by the Commission and the competent authorities of the Member States only for the purposes for which it was provided or received.

4e. Any processing of personal data shall be carried out in accordance with this Regulation and Regulations (EU) 2016/679 ⁽⁵⁾* and (EU) 2018/1725 ⁽⁶⁾* of the European Parliament and of the Council and only in so far as necessary for the application of this Regulation and to ensure effective cooperation between Member States as well as with the Commission in the application of this Regulation.

⁽¹⁾* Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (OJ L 176, 27.6.2013, p. 1).

⁽²⁾* Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (OJ L 335, 17.12.2009, p. 1).

⁽³⁾* Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories (OJ L 201, 27.7.2012, p. 1).

⁽⁴⁾* Council Regulation (EU) No 269/2014 of 17 March 2014 concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine (OJ L 78, 17.3.2014, p. 6).

⁽⁵⁾* Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).

⁽⁶⁾* Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39).;

(9) in Article 5aa, paragraph 3, point (d) is replaced by the following:

‘(d) transactions, including sales, which are strictly necessary for the wind-down, by 31 December 2023, of a joint venture or similar legal arrangement concluded before 16 March 2022, involving a legal person, entity or body referred to in paragraph 1;’;

(10) in Article 5aa, paragraph 3, the following point is added:

‘(h) the provision of pilot services to vessels in innocent passage as defined by international law which are necessary for reasons of maritime safety;’;

(11) in Article 5aa, paragraph 3a is replaced by the following:

‘3a. By way of derogation from paragraph 1, the competent authorities may authorise, under such conditions as they deem appropriate, transactions which are strictly necessary for the divestment and withdrawal by 31 December 2023, by the entities referred to in paragraph 1 or their subsidiaries in the Union from a legal person, entity or body established in the Union.’;

(12) the following Articles are inserted:

Article 5o

1. It shall be prohibited as of 27 March 2023 to allow Russian nationals or natural persons residing in Russia to hold any posts in the governing bodies of the owners or operators of critical infrastructures, European critical infrastructures and critical entities.
2. Paragraph 1 shall not apply to nationals of a Member State, of a country member of the European Economic Area or of Switzerland.

Article 5p

1. It shall be prohibited to provide storage capacity as defined in Article 2(1), point 28 of Regulation (EC) No 715/2009 of the European Parliament and of the Council (*) in a storage facility as defined in Article 2, point 9 of Directive 2009/73/EC of the European Parliament and of the Council (**), except for the part of liquefied natural gas facilities used for storage, to:
 - (a) a Russian national, a natural person residing in Russia, or a legal person, entity or body established in Russia;
 - (b) a legal person, entity or body whose proprietary rights are directly or indirectly owned for more than 50 % by a legal person, entity or body referred to in point (a) of this paragraph; or
 - (c) a natural or legal person, entity or body acting on behalf or at the direction of a legal person, entity or body referred to in point (a) or (b) of this paragraph.
2. Paragraph 1 shall not apply to the operations that are strictly necessary for the termination by 27 March 2023 of contracts which are not compliant with this Article concluded before 26 February 2023 or of ancillary contracts necessary for the execution of such contracts.
3. By way of derogation from paragraph 1, the competent authorities may authorise, under such conditions as they deem appropriate, the provision of storage capacity as referred to in paragraph 1 after having determined that it is necessary for ensuring critical energy supply within the Union.
4. The Member State or Member States concerned shall inform the other Member States and the Commission of any authorisation granted under paragraph 3 within two weeks of the authorisation.

(*) Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005 (OJ L 211, 14.8.2009, p. 36).

(**) Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC (OJ L 211, 14.8.2009, p. 94).;

(13) in Article 12b, the following paragraph is inserted:

'2a. By way of derogation from Article 5n, the competent authorities may authorise the continuation of the provision of services listed therein until 31 December 2023 where such provision of services is strictly necessary for the divestment from Russia or the wind-down of business activities in Russia, provided that the following conditions are fulfilled:

- (a) such services are provided to and for the exclusive benefit of the legal persons, entities or bodies resulting from the divestment; and
- (b) the competent authorities deciding on requests for authorisations have no reasonable grounds to believe that the services might be provided, directly or indirectly, to the Government of Russia or a military end-user or have a military end-use in Russia.;

(14) in Article 12b, paragraph 3 is replaced by the following:

'3. The Member State concerned shall inform the other Member States and the Commission of any authorisation granted under paragraph 1, 2 or 2a within two weeks of the authorisation.';

(15) the following Articles are inserted:

Article 12d

The prohibitions on providing technical assistance laid down in this Regulation shall not apply to the provision of pilot services to vessels in innocent passage as defined by international law which are necessary for reasons of maritime safety.

Article 12e

1. For the purposes of the prohibitions on importing goods provided for in this Regulation, goods physically in the Union may be released as provided for in Article 5, point (26) of the Union Customs Code (*) by the customs authorities provided that they have been presented to customs in accordance with Article 134 of the Union Customs Code before the entry into force or applicability date of the respective import prohibitions, whichever is latest.

2. All procedural steps necessary for the release referred to in paragraphs 1 and 5 of the relevant goods pursuant to the Union Customs Code shall be allowed.

3. The customs authorities shall not allow the release of the goods if they have reasonable grounds to suspect circumvention and shall not authorise the re-export of the goods to Russia.

4. Payments in relation to such goods shall be consistent with the provisions and objectives of this Regulation, in particular the prohibition on purchasing, and Regulation (EU) No 269/2014.

5. Goods physically in the Union and presented to customs prior to 26 February 2023 which were stopped in application of this Regulation may be released by the customs authorities under the conditions provided for in paragraphs 1, 2, 3 and 4.

(*) Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code (OJ L 269, 10.10.2013, p. 1).;

(16) Annex IV is amended in accordance with Annex I to this Regulation;

(17) Annex VII is amended in accordance with Annex II to this Regulation;

(18) Annex VIII is amended in accordance with Annex III to this Regulation;

(19) Annex XI is amended in accordance with Annex IV to this Regulation;

(20) Annex XV is amended in accordance with Annex V to this Regulation.

Point 20 shall apply in respect of one or several of the entities referred to in Annex V to this Regulation as from 10 April 2023 and provided that the Council, having examined the respective cases, so decides by implementing act;

(21) Annex XXI is amended in accordance with Annex VI to this Regulation;

(22) Annex XXIII is amended in accordance with Annex VII 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*.

Article 1, point (8), shall apply from 27 April 2023.

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

Done at Brussels, 25 February 2023.

For the Council
The President
J. ROSWALL

ANNEX I

Annex IV to Regulation (EU) No 833/2014 is replaced by the following:

‘ANNEX IV

List of natural or legal persons, entities or bodies, referred to in Articles 2(7), 2a(7) and 2b(1)

1. JSC Sirius
2. OJSC Stankoinstrument
3. OAO JSC Chemcomposite
4. JSC Kalashnikov
5. JSC Tula Arms Plant
6. NPK Technologii Maschinostrojenija
7. OAO Wysokototschnye Kompleksi
8. OAO Almaz Antey
9. OAO NPO Bazalt
10. Admiralty Shipyard JSC
11. Aleksandrov Scientific Research Technological Institute NITI
12. Argut OOO
13. Communication center of the Ministry of Defense

14. Federal Research Center Boreskov Institute of Catalysis
15. Federal State Budgetary Enterprise of the Administration of the President of Russia
16. Federal State Budgetary Enterprise Special Flight Unit Rossiya of the Administration of the President of Russia
17. Federal State Unitary Enterprise Dukhov Automatics Research Institute (VNIIA)
18. Foreign Intelligence Service (SVR)
19. Forensic Center of Nizhny Novgorod Region Main Directorate of the Ministry of Interior Affairs
20. International Center for Quantum Optics and Quantum Technologies (the Russian Quantum Center)
21. Irkut Corporation
22. Irkut Research and Production Corporation Public Joint Stock Company
23. Joint Stock Company Scientific Research Institute of Computing Machinery
24. JSC Central Research Institute of Machine Building (JSC TsNIIMash)
25. JSC Kazan Helicopter Plant Repair Service
26. JSC Shipyard Zaliv (Zaliv Shipbuilding yard)

27. JSC Rocket and Space Centre – Progress
28. Kamensk-Uralsky Metallurgical Works J.S. Co.
29. Kazan Helicopter Plant PJSC
30. Komsomolsk-na-Amur Aviation Production Organization (KNAAPO)
31. Ministry of Defence RF
32. Moscow Institute of Physics and Technology
33. NPO High Precision Systems JSC
34. NPO Splav JSC
35. OPK Oboronprom
36. PJSC Beriev Aircraft Company
37. PJSC Irkut Corporation
38. PJSC Kazan Helicopters
39. POLYUS Research Institute of M.F. Stelmakh Joint Stock Company
40. Promtech-Dubna, JSC

41. Public Joint Stock Company United Aircraft Corporation
42. Radiotechnical and Information Systems (RTI) Concern
43. Rapart Services LLC
44. Rosoboronexport OJSC (ROE)
45. Rostec (Russian Technologies State Corporation)
46. Rostekh – Azimuth
47. Russian Aircraft Corporation MiG
48. Russian Helicopters JSC
49. SP KVANT (Sovmestnoe Predpriyatie Kvantovye Tekhnologii)
50. Sukhoi Aviation JSC
51. Sukhoi Civil Aircraft
52. Tactical Missiles Corporation JSC
53. Tupolev JSC
54. UEC-Saturn

55. United Aircraft Corporation
56. JSC AeroKompozit
57. United Engine Corporation
58. UEC-Aviadvigatel JSC
59. United Instrument Manufacturing Corporation
60. United Shipbuilding Corporation
61. JSC PO Sevmash
62. Krasnoye Sormovo Shipyard
63. Severnaya Shipyard
64. Shipyard Yantar
65. UralVagonZavod
66. Baikal Electronics
67. Center for Technological Competencies in Radiophotonics
68. Central Research and Development Institute Tsiklon

69. Crocus Nano Electronics
70. Dalzavod Ship-Repair Center
71. Elara
72. Electronic Computing and Information Systems
73. ELPROM
74. Engineering Center Ltd.
75. Forss Technology Ltd.
76. Integral SPB
77. JSC Element
78. JSC Pella-Mash
79. JSC Shipyard Vympel
80. Kranark LLC
81. Lev Anatolyevich Yershov (Ershov)
82. LLC Center
83. MCST Lebedev

84. Miass Machine-Building Factory
85. Microelectronic Research and Development Center Novosibirsk
86. MPI VOLNA
87. N.A. Dollezhal Order of Lenin Research and Design Institute of Power Engineering
88. Nerpa Shipyard
89. NM-Tekh
90. Novorossiysk Shipyard JSC
91. NPO Electronic Systems
92. NPP Istok
93. NTC Metrotek
94. OAO GosNIIkhimanalit
95. OAO Svetlovskoye Predpriyatiye Era
96. OJSC TSRY
97. OOO Elkomtek (Elkomtex)
98. OOO Planar

99. OOO Sertal
100. Photon Pro LLC
101. PJSC Zvezda
102. Amur Shipbuilding Factory PJSC
103. AO Center of Shipbuilding and Ship Repairing JSC
104. AO Kronshtadt
105. Avant Space LLC
106. Production Association Strela
107. Radioavtomatika
108. Research Center Module
109. Robin Trade Limited
110. R.Ye. Alekseyev Central Design Bureau for Hydrofoil Ships
111. Rubin Sever Design Bureau
112. Russian Space Systems

113. Rybinsk Shipyard Engineering
114. Scientific Research Institute of Applied Chemistry
115. Scientific-Research Institute of Electronics
116. Scientific Research Institute of Hypersonic Systems
117. Scientific Research Institute NII Submikron
118. Sergey IONOV
119. Serniya Engineering
120. Severnaya Verf Shipbuilding Factory
121. Ship Maintenance Center Zvezdochka
122. State Governmental Scientific Testing Area of Aircraft Systems (GkNIPAS)
123. State Machine Building Design Bureau Raduga Bereznya
124. State Scientific Center AO GNTs RF—FEI A.I. Leypunskiy Physico-Energy Institute
125. State Scientific Research Institute of Machine Building Bakhirev (GosNII mash)

126. Tomsk Microwave and Photonic Integrated Circuits and Modules Collective Design Center
127. UAB Pella-Fjord
128. United Shipbuilding Corporation JSC “35th Shipyard”
129. United Shipbuilding Corporation JSC “Astrakhan Shipyard”
130. United Shipbuilding Corporation JSC “Aysberg Central Design Bureau”
131. United Shipbuilding Corporation JSC “Baltic Shipbuilding Factory”
132. United Shipbuilding Corporation JSC “Krasnoye Sormovo Plant OJSC”
133. United Shipbuilding Corporation JSC SC “Zvyozdochka”
134. United Shipbuilding Corporation “Pribaltic Shipbuilding Factory Yantar”
135. United Shipbuilding Corporation “Scientific Research Design Technological Bureau Onega”
136. United Shipbuilding Corporation “Sredne-Nevisky Shipyard”
137. Ural Scientific Research Institute for Composite Materials
138. Urals Project Design Bureau Detal

139. Vega Pilot Plant
140. Vertikal LLC
141. Vladislav Vladimirovich Fedorenko
142. VTK Ltd
143. Yaroslavl Shipbuilding Factory
144. ZAO Elmiks-VS
145. ZAO Sparta
146. ZAO Svyaz Inzhiniring
147. 46th TSNII Central Scientific Research Institute
148. Alagir Resistor Factory
149. All-Russian Research Institute of Optical and Physical Measurements
150. All-Russian Scientific-Research Institute Etalon JSC
151. Almaz JSC
152. Arzam Scientific Production Enterprise Temp Avia

153. Automated Procurement System for State Defense Orders, LLC
154. Dolgoprudniy Design Bureau of Automatics (DDBA JSC)
155. Electronic Computing Technology Scientific-Research Center JSC
156. Electrosignal JSC
157. Energiya JSC
158. Engineering Center Moselectronproekt
159. Etalon Scientific and Production Association
160. Evgeny Krayushin
161. Foreign Trade Association Mashpriborintorg
162. Ineko LLC
163. Informakustika JSC
164. Institute of High Energy Physics
165. Institute of Theoretical and Experimental Physics
166. Inteltech PJSC

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167. ISE SO RAN Institute of High-Current Electronics
 168. Kaluga Scientific-Research Institute of Telemechanical Devices JSC
 169. Kulon Scientific-Research Institute JSC
 170. Lutch Design Office JSC
 171. Meteor Plant JSC
 172. Moscow Communications Research Institute JSC
 173. Moscow Order of the Red Banner of Labor Research Radio Engineering Institute JSC
 174. NPO Elektromechaniki JSC
 175. Omsk Production Union Irtysh JSC
 176. Omsk Scientific-Research Institute of Instrument Engineering JSC
 177. Optron, JSC
 178. Pella Shipyard OJSC
 179. Polyot Chelyabinsk Radio Plant JSC
 180. Pskov Distance Communications Equipment Plant

181. Radiozavod JSC
182. Razryad JSC
183. Research Production Association Mars
184. Ryazan Radio-Plant
185. Scientific Production Center Vigstar JSC
186. Scientific Production Enterprise “Radiosviaz”
187. Scientific Research Institute Ferrite-Domen
188. Scientific Research Institute of Communication Management Systems
189. Scientific-Production Association and Scientific-Research Institute of Radio-Components
190. Scientific-Production Enterprise “Kant”
191. Scientific-Production Enterprise “Svyaz”
192. Scientific-Production Enterprise Almaz JSC
193. Scientific-Production Enterprise Salyut JSC

194. Scientific-Production Enterprise Volna
195. Scientific-Production Enterprise Vostok JSC
196. Scientific-Research Institute “Argon”
197. Scientific-Research Institute and Factory Platan
198. Scientific-Research Institute of Automated Systems and Communications Complexes Neptune JSC
199. Special Design and Technical Bureau for Relay Technology
200. Special Design Bureau Salute JSC
201. Tactical Missile Company, Joint Stock Company “Salute”
202. Tactical Missile Company, Joint Stock Company “State Machine Building Design Bureau ‘Vypel’ By Name I.I.Toropov”
203. Tactical Missile Company, Joint Stock Company “URALELEMENT”
204. Tactical Missile Company, Joint Stock Company “Plant Dagdiesel”
205. Tactical Missile Company, Joint Stock Company “Scientific Research Institute of Marine Heat Engineering”

206. Tactical Missile Company, Joint Stock Company PA Strela
207. Tactical Missile Company, Joint Stock Company Plant Kulakov
208. Tactical Missile Company, Joint Stock Company Ravenstvo
209. Tactical Missile Company, Joint Stock Company Ravenstvo-service
210. Tactical Missile Company, Joint Stock Company Saratov Radio Instrument Plant
211. Tactical Missile Company, Joint Stock Company Severny Press
212. Tactical Missile Company, Joint-Stock Company “Research Center for Automated Design”
213. Tactical Missile Company, KB Mashinostroeniya
214. Tactical Missile Company, NPO Electromechanics
215. Tactical Missile Company, NPO Lightning
216. Tactical Missile Company, Petrovsky Electromechanical Plant “Molot”
217. Tactical Missile Company, PJSC ”MBDB ‘ISKRA’”
218. Tactical Missile Company, PJSC ANPP Temp Avia

219. Tactical Missile Company, Raduga Design Bureau
220. Tactical Missile Corporation, “Central Design Bureau of Automation”
221. Tactical Missile Corporation, 711 Aircraft Repair Plant
222. Tactical Missile Corporation, AO GNPP “Region”
223. Tactical Missile Corporation, AO TMKB “Soyuz”
224. Tactical Missile Corporation, Azov Optical and Mechanical Plant
225. Tactical Missile Corporation, Concern “MPO – Gidropribor”
226. Tactical Missile Corporation, Joint Stock Company “KRASNY GIDROPRESS”
227. Tactical Missile Corporation, Joint Stock Company Avangard
228. Tactical Missile Corporation, Joint Stock Company Concern Granit-Electron
229. Tactical Missile Corporation, Joint Stock Company Elektrotyaga
230. Tactical Missile Corporation, Joint Stock Company GosNIIMash
231. Tactical Missile Corporation, RKB Globus
232. Tactical Missile Corporation, Smolensk Aviation Plant

233. Tactical Missile Corporation, TRV Engineering
234. Tactical Missile Corporation, Ural Design Bureau “Detal”
235. Tactical Missile Corporation, Zvezda-Strela Limited Liability Company
236. Tambov Plant (TZ) “October”
237. United Shipbuilding Corporation “Production Association Northern Machine Building Enterprise”
238. United Shipbuilding Corporation “5th Shipyard”
239. Federal Center for Dual-Use Technology (FTsDT) Soyuz
240. Turayev Machine Building Design Bureau Soyuz
241. Zhukovskiy Central Aerohydrodynamics Institute (TsAGI)
242. Rosatomflot
243. Lyulki Experimental-Design Bureau
244. Lyulki Science and Technology Center
245. AO Aviaagregat
246. Central Aerohydrodynamic Institute (TsAGI)

247. Closed Joint Stock Company Turborus (Turborus)
248. Federal Autonomous Institution Central Institute of Engine-Building N.A. P.I. Baranov;
Central Institute of Aviation Motors (CIAM)
249. Federal State Budgetary Institution National Research Center Institute N.A. N.E.
Zhukovsky (Zhukovsky National Research Institute)
250. Federal State Unitary Enterprise “State Scientific-Research Institute for Aviation Systems”
(GosNIIAS)
251. Joint Stock Company 123 Aviation Repair Plant (123 ARZ)
252. Joint Stock Company 218 Aviation Repair Plant (218 ARZ)
253. Joint Stock Company 360 Aviation Repair Plant (360 ARZ)
254. Joint Stock Company 514 Aviation Repair Plant (514 ARZ)
255. Joint Stock Company 766 UPTK
256. Joint Stock Company Aramil Aviation Repair Plant (AARZ)
257. Joint Stock Company Aviaremонт (Aviaremонт)
258. Joint Stock Company Flight Research Institute N.A. M.M. Gromov (FRI Gromov)
259. Joint Stock Company Metallist Samara (Metallist Samara)
260. Joint Stock Company Moscow Machine-Building Enterprise named after V. V.
Chernyshev (MMP V.V. Chernyshev)

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261. JSC NII Steel
 262. Joint Stock Company Remdizel
 263. Joint Stock Company Special Industrial and Technical Base Zvezdochka (SPTB Zvezdochka)
 264. Joint Stock Company STAR
 265. Joint Stock Company Votkinsk Machine Building Plant
 266. Joint Stock Company Yaroslav Radio Factory
 267. Joint Stock Company Zlatoustovsky Machine Building Plant (JSC Zlatmash)
 268. Limited Liability Company Center for Specialized Production OSK Propulsion (OSK Propulsion)
 269. Lytkarino Machine-Building Plant
 270. Moscow Aviation Institute
 271. Moscow Institute of Thermal Technology
 272. Omsk Motor-Manufacturing Design Bureau
 273. Open Joint Stock Company 170 Flight Support Equipment Repair Plant (170 RZ SOP)
 274. Open Joint Stock Company 20 Aviation Repair Plant (20 ARZ)

275. Open Joint Stock Company 275 Aviation Repair Plant (275 ARZ)
276. Open Joint Stock Company 308 Aviation Repair Plant (308 ARZ)
277. Open Joint Stock Company 32 Repair Plant of Flight Support Equipment (32 RZ SOP)
278. Open Joint Stock Company 322 Aviation Repair Plant (322 ARZ)
279. Open Joint Stock Company 325 Aviation Repair Plant (325 ARZ)
280. Open Joint Stock Company 680 Aircraft Repair Plant (680 ARZ)
281. Open Joint Stock Company 720 Special Flight Support Equipment Repair Plant (720 RZ SOP)
282. Open Joint Stock Company Volgograd Radio-Technical Equipment Plant (VZ RTO)
283. Public Joint Stock Company Agregat (PJSC Agregat)
284. Salute Gas Turbine Research and Production Center
285. Scientific-Production Association Vint of Zvezdochka Shipyard (SPU Vint)
286. Scientific Research Institute of Applied Acoustics (NIIPA)
287. Siberian Scientific-Research Institute of Aviation N.A. S.A. Chaplygin (SibNIA)
288. Software Research Institute

289. Subsidiary Sevastopol Naval Plant of Zvezdochka Shipyard (Sevastopol Naval Plant)
290. Tula Arms Plant
291. Russian Institute of Radio Navigation and Time
292. Federal Technical Regulation and Metrology Agency (Rosstandart)
293. Federal State Budgetary Institution of Science P.I. K.A. Valiev RAS of the Ministry of Science and Higher Education of Russia (FTIAN)
294. Federal State Unitary Enterprise All-Russian Research Institute of Physical, Technical and Radio Engineering Measurements (VNIIFTRI)
295. Institute of Physics Named After P.N. Lebedev of the Russian Academy of Sciences (LPI)
296. The Institute of Solid-State Physics of the Russian Academy of Sciences (ISSP)
297. Rzhhanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences (IPP SB RAS)
298. UEC-Perm Engines, JSC
299. Ural Works of Civil Aviation, JSC
300. Central Design Bureau for Marine Engineering “Rubin”, JSC
301. “Aeropribor-Voskhod”, JSC

302. Aerospace Equipment Corporation, JSC
303. Central Research Institute of Automation and Hydraulics (CNIAG), JSC
304. Aerospace Systems Design Bureau, JSC
305. Afanasyev Technomac, JSC
306. Ak Bars Shipbuilding Corporation, CJSC
307. AGAT, Gavrilov-Yaminskiy Machine-Building Plant, JSC
308. Almaz Central Marine Design Bureau, JSC
309. Joint Stock Company Eleron
310. AO Rubin
311. Branch of AO Company Sukhoi Yuri Gagarin Komsomolsk-on-Amur Aircraft Plant
312. Branch of PAO II – Aviastar
313. Branch of RSK MiG Nizhny Novgorod Aircraft-Construction Plant Sokol
314. Chkalov Novosibirsk Aviation Plant
315. Joint Stock Company All-Russian Scientific-Research Institute Gradient
316. Joint Stock Company Almatyevsk Radiopribor Plant (JSC AZRP)

317. Joint Stock Company Experimental-Design Bureau Elektroavtomatika in the name of P.A. Efimov
318. Joint Stock Company Industrial Controls Design Bureau
319. Joint Stock Company Kazan Instrument-Engineering and Design Bureau
320. Joint Stok Company Microtechnology
321. Phasotron Scientific-Research Institute of Radio-Engineering
322. Joint Stock Company Radiopribor
323. Joint Stock Company Ramensk Instrument-Engineering Bureau
324. Joint Stock Company Research and Production Center SAPSAN
325. Joint Stock Company Rychag
326. Joint Stock Company Scientific Production Enterprise Izmeritel
327. Joint Stock Company Scientific-Production Union for Radioelectronics named after V.I. Shimko
328. Joint Stock Company Taganrog Communications Scientific-Research Institute
329. Joint Stock Company Urals Instrument-Engineering Plant
330. Joint Stock Company Vzlet Engineering Testing Support

331. Joint Stock Company Zhiguli Radio Plant
332. Joint Stock Company Bryansk Electromechanical Plant
333. Public Joint Stock Company Moscow Institute of Electro-Mechanics and Automation
334. Public Joint Stock Company Stavropol Radio Plant Signal
335. Public Joint Stock Company Techpribor
336. Joint Stock Company Ramensky Instrument-Engineering Plant
337. V.V. Tarasov Avia Avtomatika
338. Design Bureau of Chemical Machine Building KBKhM
339. Far Eastern Shipbuilding and Ship Repair Center
340. Ilyushin Aviation Complex Branch: Myasishcheva Experimental Mechanical Engineering Plant
341. Institute of Marine Technology Problems Far East Branch Russian Academy of Sciences
342. Irkutsk Aviation Plant
343. Joint Stock Company Aerocomposit Ulyanovsk Plant
344. Joint Stock Company Experimental Design Bureau named after A.S. Yakovlev

345. Joint Stock Company Federal Research and Production Center Altai
346. Joint Stock Company “Head Special Design Bureau Prozhektor
347. Joint Stock Company Ilyushin Aviation Complex
348. Joint Stock Company Lazurit Central Design Bureau
349. Joint Stock Company Research and Development Enterprise Protek
350. Joint Stock Company SPMDB Malachite
351. Joint Stock Company Votkinsky Zavod
352. Kalyazinsky Machine Building Factory – Branch of RSK MiG
353. Main Directorate of Deep-Sea Research of the Ministry of Defense of the Russian Federation
354. NPP Start
355. OAO Radiofizika
356. P.A. Voronin Lukhovitsk Aviation Plant, branch of RSK MiG
357. Public Joint Stock Company Bryansk Special Design Bureau
358. Public Joint Stock Company Voronezh Joint Stock Aircraft Company
359. Radio Technical Institute named after A. L. Mints

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- 360. Russian Federal Nuclear Center – All-Russian Research Institute of Experimental Physics
 - 361. Shvabe JSC
 - 362. Special Technological Center LLC
 - 363. St. Petersburg Marine Bureau of Machine Building Malakhit
 - 364. St. Petersburg Naval Design Bureau Almaz
 - 365. St. Petersburg Shipbuilding Institution Krylov 45
 - 366. Strategic Control Posts Corporation
 - 367. V.A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences
 - 368. Vladimir Design Bureau for Radio Communications OJSC
 - 369. Voentelecom JSC
 - 370. A.A. Kharkevich Institute for Information Transmission Problems (IITP), Russian Academy of Sciences (RAS)
 - 371. Ak Bars Holding
 - 372. Special Research Bureau for Automation of Marine Researches Far East Branch Russian Academy of Sciences
 - 373. Systems of Biological Synthesis LLC

374. Borisfen, JSC
375. Barnaul cartridge plant, JSC
376. Concern Aurora Scientific and Production Association, JSC
377. Bryansk Automobile Plant, JSC
378. Burevestnik Central Research Institute, JSC
379. Research Institute of Space Instrumentation, JSC
380. Arsenal Machine-building plant, OJSC
381. Central Design Bureau of Automatics, JSC
382. Zelenodolsk Design Bureau, JSC
383. Zavod Elecon, JSC
384. VMP “Avitec”, JSC
385. JSC V. Tikhomirov Scientific Research Institute of Instrument Design
386. Tulatochmash, JSC
387. PJSC “I.S. Brook” INEUM
388. SPE “Krasnoznamens”, JSC

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- 389. SPA Pribor named after S.S. Golembiovsky, SC
 - 390. SPA “Impuls”, JSC
 - 391. RusBITech
 - 392. ROTOR 43
 - 393. Rostov optical and mechanical plant, PJSC
 - 394. RATEP, JSC
 - 395. PLAZ
 - 396. OKB “Technika”
 - 397. Ocean Chips
 - 398. Nudelman Precision Engineering Design Bureau
 - 399. Angstrom JSC
 - 400. NPCAP
 - 401. Novosibirsk Plant of Artificial Fibre
 - 402. Novosibirsk Cartridge Plant, JSC (alias: SIBFIRE), Новосибирский Патронный Завод
 - 403. Novator DB

404. NIMI named after V.V. BAHIREV, JSC
405. NII Stali JSC
406. Nevskoe Design Bureau, JSC
407. Neva Electronica JSC
408. ENICS
409. The JSC Makeyev Design Bureau
410. KURGANPRIBOR, JSC
411. Ural Optical-Mechanical Plant E.S. Yalamova, JSC
412. Ramenskoye Engineering Design Office, JSC
413. Vologda Optical and Mechanical Plant, JSC
414. Videoglaz Project
415. Innovative Underwater Technologies, LLC
416. Ulyanovsk Mechanical Plant
417. All-Russian Research Institute of Radio Engineering
418. PJSC “Scientific and Production Association ‘Almaz’ named after Academician A.A. Raspletin”

419. Concern OJSC – KIZLYAR ELECTRO-MECHANICAL PLANT
420. Concern Oceanpribor, JSC
421. JSC Zelenogradsky Nanotechnology Center
422. JSC Elektronstandart Pribor
423. JSC “Urals Optical-Mechanical Plant named after Mr E.S Yalamov”
424. Ramenskoye Instrument-Making Design Bureau, JSC
425. Special Technology Centre Limited Liability Company
426. Vest Ost Limited Liability
427. Trade-Component LLC
428. Radiant Electronic Components JSC
429. JSC ICC Milandr
430. SMT iLogic LLC
431. Device Consulting
432. Concern Radio-Electronic Technologies
433. Technodinamika, JSC

434. OOO “UNITEK”
435. Closed Joint Stock Company TPK LINKOS
436. Closed Joint Stock Company TPK LINKOS, SUBDIVISION IN ASTRAKHAN
437. Design and Manufacturing of Aircraft Engines (DAMA)
438. Islamic Revolutionary Guard Corps Aerospace Force
439. Islamic Revolutionary Guard Corps Research and Self-Sufficiency Jihad Organization (IRGC SSJO)
440. Oje Parvaz Mado Nafar Company (Mado)
441. Paravar Pars Company
442. Qods Aviation Industries
443. Shahed Aviation Industries
444. Concern Morinformsystem–Agat
445. AO Papon

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- 446. IT-Papillon OOO
 - 447. OOO Adis
 - 448. Papiilon Systems Limited Liability Company
 - 449. Advanced Research Foundation
 - 450. Federal Service for Military-Technical Cooperation
 - 451. Federal State Budgetary Scientific Institution Research and Production Complex Technology Center
 - 452. Federal State Institution Federal Scientific Center Scientific Research Institute for System Analysis of the Russian Academy of Sciences
 - 453. Joint Stock Company All-Russian Research Institute Signal
 - 454. Joint Stock Company Center of Research and Technology Services Dinamika
 - 455. Joint Stock Company Concern Avtomatika
 - 456. Joint Stock Company Corporation Moscow Institute of Heat Technology
 - 457. Joint Stock Company Design Center Soyuz

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458. Joint Stock Company Design Technology Center Elektronika
 459. Joint Stock Company Institute for Scientific Research Microelectronic Equipment Progress
 460. Joint Stock Company Machine-Building Engineering Office Fakel Named After Akademika P.D. Grushina
 461. Joint Stock Company Moscow Institute of Electromechanics and Automatics
 462. Joint Stock Company North Western Regional Center of Almaz Antey Concern Obukhovsky Plant
 463. Joint Stock Company Obninsk Research and Production Enterprise Technologiya Named After A.G. Romashin
 464. Joint Stock Company Penza Electrotechnical Research Institute
 465. Joint Stock Company Production Association Sever
 466. Joint Stock Company Research Center ELINS
 467. Joint Stock Company Research and Production Association of Measuring Equipment
 468. Joint Stock Company Research and Production Enterprise Radar MMS

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469. Joint Stock Company Research and Production Enterprise Sapfir
 470. Joint Stock Company RT-Tekhpriemka
 471. Joint Stock Company Russian Research Institute Electronstandart
 472. Joint Stock Company Ryazan Plant of Metal Ceramic Instruments
 473. Joint Stock Company Scientific Production Enterprise Digital Solutions
 474. Joint Stock Company Scientific Production Enterprise Kontakt
 475. Joint Stock Company Scientific Production Enterprise Topaz
 476. Joint Stock Company Scientific Research Institute Giricond
 477. Joint Stock Company Scientific Research Institute of Computer Engineering NII SVT
 478. Joint Stock Company Scientific Research Institute of Electrical Carbon Products
 479. Joint Stock Company Scientific Research Institute of Electronic and Mechanical Devices
 480. Joint Stock Company Scientific Research Institute of Electronic Engineering Materials
 481. Joint Stock Company Scientific Research Institute of Gas Discharge Devices Plasma
 482. Joint Stock Company Scientific Research Institute of Industrial Television Rastr

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483. Joint Stock Company Scientific Research Institute of Precision Mechanical Engineering
 484. Joint Stock Company Special Design Bureau of Computer Engineering
 485. Joint Stock Company Special Design Bureau of Control Means
 486. Joint Stock Company Special Design Bureau Turbina
 487. Joint Stock Company State Scientific Research Institute Kristall
 488. Joint Stock Company Svetlana Semiconductors
 489. Joint Stock Company Tekhnodinamika
 490. Joint Stock Company Voronezh Semiconductor Devices Factory Assembly
 491. KAMAZ Publicly Traded Company
 492. Keldysh Institute of Applied Mathematics of the Russian Academy of Sciences
 493. Limited Liability Company Research and Production Association Radiovolna
 494. Limited Liability Company RSBGroup
 495. Mitishinskiy Scientific Research Institute of Radio Measuring Instruments

- 496. Open Joint Stock Company Khabarovsk Radio Engineering Plant
 - 497. Open Joint Stock Company Mariyskiy Machine-Building Plant
 - 498. Open Joint Stock Company Scientific and Production Enterprise Pulsar
 - 499. Public Joint Stock Company Megafon
 - 500. Public Joint Stock Company Tutaev Motor Plant
 - 501. Public Joint Stock Company Vympel Interstate Corporation
 - 502. RT-Inform Limited Liability Company
 - 503. Skolkovo Foundation
 - 504. Skolkovo Institute of Science and Technology
 - 505. State Flight Testing Center Named After V.P. Chkalov
 - 506. Joint Stock Company Research and Production Association Named After S.A. Lavochkina’.
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ANNEX II

Annex VII to Regulation (EU) No 833/2014 is replaced by the following:

‘ANNEX VII

List of goods and technology referred to in Articles 2a(1) and 2b(1)

Part A

General Notes, Acronyms and Abbreviations, and Definitions in Annex I to Regulation (EU) 2021/821 apply to this Annex, with the exception of “Part I – General Notes, Acronyms and Abbreviations, and Definitions, General Notes to Annex I, point 2”.

Definitions of Terms used in the Common Military List (CML) of the European Union (2020/C 85/01) apply to this Annex.

Without prejudice to Article 12 of this Regulation, non-controlled items containing one or more components listed in this Annex are not subject to the controls under Articles 2a and 2b of this Regulation.

Category I – Electronics

X.A.I.001 Electronic devices and components.

- a. “Microprocessor microcircuits”, “microcomputer microcircuits”, and microcontroller microcircuits having any of the following:
 1. A performance speed of 5 GigaFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more;
 2. A clock frequency rate exceeding 25 MHz; or
 3. More than one data or instruction bus or serial communication port that provides a direct external interconnection between parallel “microprocessor microcircuits” with a transfer rate of 2,5 Mbyte/s;
- b. Storage integrated circuits, as follows:
 1. Electrically erasable programmable read-only memories (EEPROMs) with a storage capacity;
 - a. Exceeding 16 Mbits per package for flash memory types; or

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- b. Exceeding either of the following limits for all other EEPROM types:
 1. Exceeding 1 Mbit per package; or
 2. Exceeding 256 kbit per package and a maximum access time of less than 80 ns;
 2. Static random access memories (SRAMs) with a storage capacity:
 - a. Exceeding 1 Mbit per package; or
 - b. Exceeding 256 kbit per package and a maximum access time of less than 25 ns;
 - c. Analogue-to-digital converters having any of the following:
 1. A resolution of 8 bit or more, but less than 12 bit, with an output rate greater than 200 Mega Samples Per Second (MSPS);
 2. A resolution of 12 bit with an output rate greater than 105 Mega Samples per Second (MSPS);

3. A resolution of more than 12 bit but equal to or less than 14 bit with an output rate greater than 10 Mega Samples per Second (MSPS); or
 4. A resolution of more than 14 bit with an output rate greater than 2,5 Mega Samples Per Second (MSPS);
- d. Field programmable logic devices having a maximum number of single-ended digital input/outputs between 200 and 700;
 - e. Fast Fourier Transform (FFT) processors having a rated execution time for a 1024 point complex FFT of less than 1 ms;
 - f. Custom integrated circuits for which the function is unknown, or the control status of the equipment in which the integrated circuits will be used is unknown to the manufacturer, having any of the following:
 1. More than 144 terminals; or
 2. A typical basic propagation delay time of less than 0,4 ns;

- g. Traveling-wave “vacuum electronic devices”, pulsed or continuous wave, as follows:
1. Coupled cavity devices, or derivatives thereof;
 2. Devices based on helix, folded waveguide, or serpentine waveguide circuits, or derivatives thereof, having any of the following:
 - a. An “instantaneous bandwidth” of half an octave or more and average power (expressed in kW) times frequency (expressed in GHz) of more than 0,2; or
 - b. An “instantaneous bandwidth” of less than half an octave; and average power (expressed in kW) times frequency (expressed in GHz) of more than 0,4;
- h. Flexible waveguides designed for use at frequencies exceeding 40 GHz;

- i. Surface acoustic wave and surface skimming (shallow bulk) acoustic wave devices, having either of the following:
 1. A carrier frequency exceeding 1 GHz; or
 2. A carrier frequency of 1 GHz or less; and
 - a. A “frequency side-lobe rejection” exceeding 55 dB;
 - b. A product of the maximum delay time and bandwidth (time in μs and bandwidth in MHz) of more than 100; or
 - c. A dispersive delay of more than 10 μs ;

Technical Note: For the purpose of X.A.I.001.i “Frequency side-lobe rejection” is the maximum rejection value specified in data sheet.
- j. “Cells” as follows:
 1. “Primary cells” having an “energy density” of 550 Wh/kg or less at 293 K (20 °C);

2. “Secondary cells” having an “energy density” of 350 Wh/kg or less at 293 K (20 °C);

Note: X.A.I.001.j does not control batteries, including single cell batteries.

Technical Notes:

1. *For the purpose of X.A.I.001.j energy density (Wh/kg) is calculated from the nominal voltage multiplied by the nominal capacity in ampere-hours (Ah) divided by the mass in kilograms. If the nominal capacity is not stated, energy density is calculated from the nominal voltage squared then multiplied by the discharge duration in hours divided by the discharge load in Ohms and the mass in kilograms.*
2. *For the purpose of X.A.I.001.j, a “cell” is defined as an electrochemical device, which has positive and negative electrodes, and electrolyte, and is a source of electrical energy. It is the basic building block of a battery.*
3. *For the purpose of X.A.I.001.j.1, a “primary cell” is a “cell” that is not designed to be charged by any other source.*
4. *For the purpose of X.A.I.001.j.2, a “secondary cell” is a “cell” that is designed to be charged by an external electrical source.*

- k. “Superconductive” electromagnets or solenoids specially designed to be fully charged or discharged in less than one minute, having all of the following:

Note: X.A.I.001.k does not control “superconductive” electromagnets or solenoids designed for Magnetic Resonance Imaging (MRI) medical equipment.

1. Maximum energy delivered during the discharge divided by the duration of the discharge of more than 500 kJ per minute;
 2. Inner diameter of the current carrying windings of more than 250 mm; and
 3. Rated for a magnetic induction of more than 8T or “overall current density” in the winding of more than 300 A/mm²;
- l. Circuits or systems for electromagnetic energy storage, containing components manufactured from “superconductive” materials specially designed for operation at temperatures below the “critical temperature” of at least one of their “superconductive” constituents, having all of the following:
1. Resonant operating frequencies exceeding 1 MHz;
 2. A stored energy density of 1 MJ/m³ or more; and
 3. A discharge time of less than 1 ms;

- m. Hydrogen/hydrogen-isotope thyratrons of ceramic-metal construction and rate for a peak current of 500 A or more;
- n. Not used;
- o. Solar cells, cell-interconnect-coverglass (CIC) assemblies, solar panels, and solar arrays, which are “space qualified” and not controlled by 3A001.e.4¹.

X.A.I.002 General purpose “electronic assemblies”, modules and equipment.

- a. Electronic test equipment, other than those specified in the CML or in Regulation (EU) 2021/821;
- b. Digital instrumentation magnetic tape data recorders having any of the following characteristics;
 - 1. A maximum digital interface transfer rate exceeding 60 Mbit/s and employing helical scan techniques;
 - 2. A maximum digital interface transfer rate exceeding 120 Mbit/s and employing fixed head techniques; or
 - 3. “Space qualified”;

¹ Ref. Annex I to Regulation (EU) 2021/821

- c. Equipment, with a maximum digital interface transfer rate exceeding 60 Mbit/s, designed to convert digital video magnetic tape recorders for use as digital instrumentation data recorders;
- d. Non-modular analogue oscilloscopes having a bandwidth of 1 GHz or greater;
- e. Modular analogue oscilloscope systems having either of the following characteristics:
 - 1. A mainframe with a bandwidth of 1 GHz or greater; or
 - 2. Plug-in modules with an individual bandwidth of 4 GHz or greater;
- f. Analogue sampling oscilloscopes for the analysis of recurring phenomena with an effective bandwidth greater than 4 GHz;
- g. Digital oscilloscopes and transient recorders, using analogue-to-digital conversion techniques, capable of storing transients by sequentially sampling single-shot inputs at successive intervals of less than 1 ns (greater than 1 Giga Samples per Second (GSPS)), digitizing to 8 bits or greater resolution and storing 256 or more samples.

Note: X.A.I.002 controls the following specially designed components for analogue oscilloscopes:

1. *Plug-in units;*
2. *External amplifiers;*
3. *Pre-amplifiers;*
4. *Sampling devices;*
5. *Cathode ray tubes.*

X.A.I.003 Specific processing equipment, other than those specified in the CML or in Regulation (EU) 2021/821, as follows:

- a. Frequency changers and their specially designed components, other than those specified in the CML or in Regulation (EU) 2021/821;
- b. Mass spectrometers, other than those specified in the CML or in Regulation (EU) 2021/821;
- c. All flash X-ray machines, or components of pulsed power systems designed thereof, including Marx generators, high power pulse shaping networks, high voltage capacitors, and triggers;

- d. Pulse amplifiers, other than those specified in the CML or in Regulation (EU) 2021/821;
 - e. Electronic equipment for time delay generation or time interval measurement, as follows:
 - 1. Digital time delay generators with a resolution of 50 ns or less over time intervals of 1 μ s or greater; or
 - 2. Multi-channel (three or more) or modular time interval meter and chronometry equipment with resolution of 50 ns or less over time intervals of 1 μ s or greater;
 - f. Chromatography and spectrometry analytical instruments.
- X.B.I.001 Equipment for the manufacture of electronic components or materials, as follows and specially designed components and accessories therefor:
- a. Equipment specially designed for the manufacture of electron tubes, optical elements and specially designed components therefor controlled by 3A001¹ or X.A.I.001;

¹ Ref. Annex I to Regulation (EU) 2021/821

- b. Equipment specially designed for the manufacture of semiconductor devices, integrated circuits and “electronic assemblies”, as follows, and systems incorporating or having the characteristics of such equipment:

Note: X.B.I.001.b. also controls equipment used or modified for use in the manufacture of other devices, such as imaging devices, electro-optical devices, acoustic-wave devices.

1. Equipment for the processing of materials for the manufacture of devices and components as specified in the heading of X.B.I.001.b, as follows:

Note: X.B.I.001 does not control quartz furnace tubes, furnace liners, paddles, boats (except specially designed caged boats), bubblers, cassettes or crucibles specially designed for the processing equipment controlled by X.B.I.001.b.1.

- a. Equipment for producing polycrystalline silicon and materials controlled by 3C001¹;
- b. Equipment specially designed for purifying or processing III/V and II/VI semiconductor materials controlled by 3C001, 3C002, 3C003, 3C004, or 3C005¹ except crystal pullers, for which see X.B.I.001.b.1.c below;

¹ Ref. Annex I to Regulation (EU) 2021/821

- c. Crystal pullers and furnaces, as follows:

Note: X.B.I.001.b.1.c does not control diffusion and oxidation furnaces.

1. Annealing or recrystallizing equipment other than constant temperature furnaces employing high rates of energy transfer capable of processing wafers at a rate exceeding 0,005 m² per minute;
2. “Stored program controlled” crystal pullers having any of the following characteristics:
 - a. Rechargeable without replacing the crucible container;
 - b. Capable of operation at pressures above 2,5 x 10⁵ Pa;
or
 - c. Capable of pulling crystals of a diameter exceeding 100 mm;
- d. “Stored program controlled” equipment for epitaxial growth having any of the following characteristics:
 1. Capable of producing silicon layer with a thickness uniform to less than ± 2,5 % across a distance of 200 mm or more;

2. Capable of producing a layer of any material other than silicon with a thickness uniformity across the wafer of equal to or better than $\pm 3,5 \%$; or
 3. Rotation of individual wafers during processing;
- e. Molecular beam epitaxial growth equipment;
- f. Magnetically enhanced “sputtering” equipment with specially designed integral load locks capable of transferring wafers in an isolated vacuum environment;
- g. Equipment specially designed for ion implantation, ion-enhanced or photo-enhanced diffusion, having any of the following characteristics:
1. Patterning capability;
 2. Beam energy (accelerating voltage) exceeding 200 keV;
 3. Optimised to operate at a beam energy (accelerating voltage) of less than 10 keV; or
 4. Capable of high energy oxygen implant into a heated “substrate”;

- h. “Stored program controlled” equipment for the selective removal (etching) by means of anisotropic dry methods (e.g., plasma), as follows:
1. “Batch types” having either of the following:
 - a. End-point detection, other than optical emission spectroscopy types; or
 - b. Reactor operational (etching) pressure of 26,66 Pa or less;
 2. “Single wafer types” having any of the following:
 - a. End-point detection, other than optical emission spectroscopy types;
 - b. Reactor operational (etching) pressure of 26,66 Pa or less; or
 - c. Cassette-to-cassette and load locks wafer handling;

Notes:

1. *“Batch types” refers to machines not specially designed for production processing of single wafers. Such machines can process two or more wafers simultaneously with common process parameters, e.g., RF power, temperature, etch gas species, flow rates.*
2. *“Single wafer types” refers to machines specially designed for production processing of single wafers. These machines may use automatic wafer handling techniques to load a single wafer into the equipment for processing. The definition includes equipment that can load and process several wafers but where the etching parameters, e.g., RF power or end point, can be independently determined for each individual wafer.*

- i. Chemical vapour deposition (CVD) equipment, e.g., plasma-enhanced CVD (PECVD) or photo-enhanced CVD, for semiconductor device manufacturing, having either of the following capabilities, for deposition of oxides, nitrides, metals or polysilicon:
 1. Chemical vapour deposition equipment operating below 10^5 Pa; or
 2. PECVD equipment operating either below 60 Pa or having automatic cassette-to-cassette and load lock wafer handling;

Note: X.B.I.001.b.1.i does not control low pressure chemical vapour deposition (LPCVD) systems or reactive “sputtering” equipment.

- j. Electron beam systems specially designed or modified for mask making or semiconductor device processing having any of the following characteristics:
 1. Electrostatic beam deflection;
 2. Shaped, non-Gaussian beam profile;
 3. Digital-to-analogue conversion rate exceeding 3 MHz;

4. Digital-to-analogue conversion accuracy exceeding 12 bit; or
5. Target-to-beam position feedback control precision of 1 μm or finer;

Note: X.B.I.001.b.1.j does not control electron beam deposition systems or general purpose scanning electron microscopes.

- k. Surface finishing equipment for the processing of semiconductor wafers as follows:
 1. Specially designed equipment for backside processing of wafers thinner than 100 μm and the subsequent separation thereof; or
 2. Specially designed equipment for achieving a surface roughness of the active surface of a processed wafer with a two-sigma value of 2 μm or less, total indicator reading (TIR);

Note: X.B.I.001.b.1.k does not control single-side lapping and polishing equipment for wafer surface finishing.

- l. Interconnection equipment which includes common single or multiple vacuum chambers specially designed to permit the integration of any equipment controlled by X.B.I.001 into a complete system;
- m. “Stored program controlled” equipment using “lasers” for the repair or trimming of “monolithic integrated circuits” with either of the following characteristics:
 1. Positioning accuracy less than $\pm 1 \mu\text{m}$; or
 2. Spot size (kerf width) less than $3 \mu\text{m}$.

Technical Note: For the purpose of X.B.I.001.b.1, “sputtering” is an overlay coating process wherein positively charged ions are accelerated by an electric field towards the surface of a target (coating material). The kinetic energy of the impacting ions is sufficient to cause target surface atoms to be released and deposited on the substrate. (Note: Triode, magnetron or radio frequency sputtering to increase adhesion of coating and rate of deposition are ordinary modifications of the process.)

2. Masks, mask substrates, mask-making equipment and image transfer equipment for the manufacture of devices and components as specified in the heading of X.B.I.001, as follows:

Note: The term masks refers to those used in electron beam lithography, X-ray lithography, and ultraviolet lithography, as well as the usual ultraviolet and visible photo-lithography.

- a. Finished masks, reticles and designs therefor, except:
 1. Finished masks or reticles for the production of integrated circuits not controlled by 3A001¹; or
 2. Masks or reticles, having both of the following characteristics:
 - a. Their design is based on geometries of 2,5 µm or more; and
 - b. The design does not include special features to alter the intended use by means of production equipment or “software”;

¹ Ref. Annex I to Regulation (EU) 2021/821

- b. Mask substrates as follows:
 - 1. Hard surface (e.g., chromium, silicon, molybdenum) coated “substrates” (e.g., glass, quartz, sapphire) for the preparation of masks having dimensions exceeding 125 mm x 125 mm;
or
 - 2. Substrates specially designed for X-ray masks;
- c. Equipment, other than general purpose computers, specially designed for computer aided design (CAD) of semiconductor devices or integrated circuits;
- d. Equipment or machines, as follows, for mask or reticle fabrication:
 - 1. Photo-optical step and repeat cameras capable of producing arrays larger than 100 mm x 100 mm, or capable of producing a single exposure larger than 6 mm x 6 mm in the image (i.e., focal) plane, or capable of producing line widths of less than 2,5 µm in the photoresist on the “substrate”;
 - 2. Mask or reticle fabrication equipment using ion or “laser” beam lithography capable of producing line widths of less than 2,5 µm; or

3. Equipment or holders for altering masks or reticles or adding pellicles to remove defects;

Note: X.B.I.001.b.2.d.1 and b.2.d.2 do not control mask fabrication equipment using photo-optical methods which was either commercially available before the 1st January 1980, or has a performance no better than such equipment.

- e. “Stored program controlled” equipment for the inspection of masks, reticles or pellicles with:

1. A resolution of 0,25 μm or finer; and
2. A precision of 0,75 μm or finer over a distance in one or two coordinates of 63,5 mm or more;

Note: X.B.I.001.b.2.e does not control general purpose scanning electron microscopes except when specially designed and instrumented for automatic pattern inspection.

- f. Align and expose equipment for wafer production using photo-optical or X-ray methods, e.g., lithography equipment, including both projection image transfer equipment and step and repeat (direct step on wafer) or step and scan (scanner) equipment, capable of performing any of the following functions:

Note: X.B.I.001.b.2.f does not control photo-optical contact and proximity mask align and expose equipment or contact image transfer equipment.

1. Production of a pattern size of less than 2,5 μm ;
2. Alignment with a precision finer than $\pm 0,25 \mu\text{m}$ (3 sigma);
3. Machine-to-machine overlay no better than $\pm 0,3 \mu\text{m}$; or
4. A light source wavelength shorter than 400 nm;

- g. Electron beam, ion beam or X-ray equipment for projection image transfer capable of producing patterns less than 2,5 μm ;

Note: For focused, deflected-beam systems (direct write systems), see X.B.I.001.b.1.j.

- h. Equipment using “lasers” for direct write on wafers capable of producing patterns less than 2,5 μm .

3. Equipment for the assembly of integrated circuits, as follows:
 - a. “Stored program controlled” die bonders having all of the following characteristics:
 1. Specially designed for “hybrid integrated circuits”;
 2. X-Y stage positioning travel exceeding 37,5 x 37,5 mm; and
 3. Placement accuracy in the X-Y plane of finer than $\pm 10 \mu\text{m}$;
 - b. “Stored program controlled” equipment for producing multiple bonds in a single operation (e.g., beam lead bonders, chip carrier bonders, tape bonders);
 - c. Semi-automatic or automatic hot cap sealers, in which the cap is heated locally to a higher temperature than the body of the package, specially designed for ceramic microcircuit packages controlled by 3A001¹ and that have a throughput equal to or more than one package per minute.

Note: X.B.I.001.b.3 does not control general purpose resistance type spot welders.

¹ Ref. Annex I to Regulation (EU) 2021/821

4. Filters for clean rooms capable of providing an air environment of 10 or less particles of 0,3 µm or smaller per 0,02832 m³ and filter materials therefor.

Technical Note: For the purpose of X.B.I.001, “stored program controlled” is a control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions. Equipment may be “stored program controlled” whether the electronic storage is internal or external to the equipment.

X.B.I.002 Equipment for the inspection or testing of electronic components and materials, and specially designed components and accessories therefor.

- a. Equipment specially designed for the inspection or testing of electron tubes, optical elements and specially designed components therefor controlled by 3A001¹ or X.A.I.001;
- b. Equipment specially designed for the inspection or testing of semiconductor devices, integrated circuits and “electronic assemblies”, as follows, and systems incorporating or having the characteristics of such equipment:

Note: X.B.I.002.b also controls equipment used or modified for use in the inspection or testing of other devices, such as imaging devices, electro-optical devices, acoustic-wave devices.

¹ Ref. Annex I to Regulation (EU) 2021/821

1. “Stored program controlled” inspection equipment for the automatic detection of defects, errors or contaminants of 0,6 µm or less in or on processed wafers, substrates, other than printed circuit boards or chips, using optical image acquisition techniques for pattern comparison;

Note: X.B.I.002.b.1 does not control general purpose scanning electron microscopes, except when specially designed and instrumented for automatic pattern inspection.

2. Specially designed “stored program controlled” measuring and analysis equipment, as follows:
 - a. Specially designed for the measurement of oxygen or carbon content in semiconductor materials;
 - b. Equipment for line width measurement with a resolution of 1 µm or finer;
 - c. Specially designed flatness measurement instruments capable of measuring deviations from flatness of 10 µm or less with a resolution of 1 µm or finer.

3. “Stored program controlled” wafer probing equipment having any of the following characteristics:
 - a. Positioning accuracy finer than 3,5 µm;
 - b. Capable of testing devices having more than 68 terminals; or
 - c. Capable of testing at a frequency exceeding 1 GHz;
4. Test equipment as follows:
 - a. “Stored program controlled” equipment specially designed for testing discrete semiconductor devices and unencapsulated dice, capable of testing at frequencies exceeding 18 GHz;
Technical Note: Discrete semiconductor devices include photocells and solar cells.
 - b. “Stored program controlled” equipment specially designed for testing integrated circuits and “electronic assemblies” thereof, capable of functional testing:
 1. At a “pattern rate” exceeding 20 MHz; or

2. At a “pattern rate” exceeding 10 MHz but not exceeding 20 MHz and capable of testing packages of more than 68 terminals.

Notes: X.B.I.002.b.4.b does not control test equipment specially designed for testing:

1. *Memories;*
2. *Assemblies or a class of “electronic assemblies” for home and entertainment applications; and*
3. *Electronic components, “electronic assemblies” and integrated circuits not controlled by 3A001¹ or X.A.I.001 provided such test equipment does not incorporate computing facilities with “user accessible programmability”.*

Technical Note: For purposes of X.B.I.002.b.4.b, “pattern rate” is defined as the maximum frequency of digital operation of a tester. It is therefore equivalent to the highest data rate that a tester can provide in non-multiplexed mode. It is also referred to as test speed, maximum digital frequency or maximum digital speed.

¹ Ref. Annex I to Regulation (EU) 2021/821

- c. Equipment specially designed for determining the performance of focal-plane arrays at wavelengths of more than 1 200 nm, using “stored program controlled” measurements or computer aided evaluation and having any of the following characteristics:
 - 1. Using scanning light spot diameters of less than 0,12 mm;
 - 2. Designed for measuring photosensitive performance parameters and for evaluating frequency response, modulation transfer function, uniformity of responsivity or noise; or
 - 3. Designed for evaluating arrays capable of creating images with more than 32 x 32 line elements;
- 5. Electron beam test systems designed for operation at 3 keV or below, or “laser” beam systems, for non-contactive probing of powered-up semiconductor devices having any of the following:
 - a. Stroboscopic capability with either beam blanking or detector strobing;

- b. An electron spectrometer for voltage measurements with a resolution of less than 0,5 V; or
- c. Electrical tests fixtures for performance analysis of integrated circuits;

Note: X.B.I.002.b.5 does not control scanning electron microscopes, except when specially designed and instrumented for non-contactive probing of a powered-up semiconductor device.

- 6. “Stored program controlled” multifunctional focused ion beam systems specially designed for manufacturing, repairing, physical layout analysis and testing of masks or semiconductor devices and having either of the following characteristics:
 - a. Target-to-beam position feedback control precision of 1 μm or finer; or
 - b. Digital-to-analogue conversion accuracy exceeding 12 bit;

7. Particle measuring systems employing “lasers” designed for measuring particle size and concentration in air having both of the following characteristics:
 - a. Capable of measuring particle sizes of 0,2 µm or less at a flow rate of 0,02832 m³ per minute or more; and
 - b. Capable of characterizing Class 10 clean air or better.

Technical Note: For the purpose of X.B.I.002, “stored program controlled” is a control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions. Equipment may be “stored program controlled” whether the electronic storage is internal or external to the equipment.

X.C.I.001 Positive resists designed for semiconductor lithography specially adjusted (optimised) for use at wavelengths between 370 and 193 nm.

- X.D.I.001 “Software” specially designed for the “development”, “production”, or “use” of electronic devices or components controlled by X.A.I.001, general purpose electronic equipment controlled by X.A.I.002, or manufacturing and test equipment controlled by X.B.I.001 and X.B.I.002; or “software” specially designed for the “use” of equipment controlled by 3B001.g and 3B001.h¹.
- X.E.I.001 “Technology” for the “development”, “production” or “use” of electronic devices or components controlled by X.A.I.001, general purpose electronic equipment controlled by X.A.I.002, or manufacturing and test equipment controlled by X.B.I.001 or X.B.I.002, or materials controlled by X.C.I.001.

Category II – Computers

Note: Category II does not control goods for the personal use of the natural persons.

- X.A.II.001 Computers, “electronic assemblies” and related equipment, not controlled by 4A001 or 4A003¹, and specially designed components therefor.

¹ Ref. Annex I to Regulation (EU) 2021/821

Note: The control status of the “digital computers” and related equipment described in X.A.II.001 is determined by the control status of other equipment or systems provided:

- a. The “digital computers” or related equipment are essential for the operation of the other equipment or systems;*
- b. The “digital computers” or related equipment are not a “principal element” of the other equipment or systems; and*

N.B.1: The control status of “signal processing” or “image enhancement” equipment specially designed for other equipment with functions limited to those required for the other equipment is determined by the control status of the other equipment even if it exceeds the “principal element” criterion.

N.B.2: For the control status of “digital computers” or related equipment for telecommunications equipment, see Category 5, Part 1 (Telecommunications)¹.

- c. The “technology” for the “digital computers” and related equipment is determined by 4E¹.*

¹ Ref. Annex I to Regulation (EU) 2021/821

- a. Electronic computers and related equipment, and “electronic assemblies” and specially designed components therefor, rated for operation at an ambient temperature above 343 K (70°C);
- b. “Digital computers”, including equipment of “signal processing” or “image enhancement”, having an “Adjusted Peak Performance” (“APP”) equal to or greater than 0,0128 Weighted TeraFLOPS (WT);
- c. “Electronic assemblies” that are specially designed or modified to enhance performance by aggregation of processors, as follows:
 1. Designed to be capable of aggregation in configurations of 16 or more processors;
 2. Not used;

Note 1: X.A.II.001.c applies only to “electronic assemblies” and programmable interconnections with a “APP” not exceeding the limits in X.A.II.001.b, when shipped as unintegrated “electronic assemblies”. It does not apply to “electronic assemblies” inherently limited by nature of their design for use as related equipment controlled by X.A.II.001.k.

Note 2: X.A.II.001.c does not control any “electronic assembly” specially designed for a product or family of products whose maximum configuration does not exceed the limits of X.A.II.001.b.

- d. Not used;
- e. Not used;
- f. Equipment for “signal processing” or “image enhancement” having an “Adjusted Peak Performance” (“APP”) equal to or greater than 0,0128 Weighted TeraFLOPS WT;
- g. Not used;
- h. Not used;
- i. Equipment containing “terminal interface equipment” exceeding the limits in X.A.III.101;

Technical Note: For the purpose of X.A.II.001.i, “terminal interface equipment” means equipment at which information enters or leaves the telecommunication system, e.g. telephone, data device, computer, etc.

- j. Equipment specially designed to provide external interconnection of “digital computers” or associated equipment that allows communications at data rates exceeding 80 Mbyte/s.

Note: X.A.II.001.j does not control internal interconnection equipment (e.g., backplanes, buses) passive interconnection equipment, “network access controllers” or “communication channel controllers”.

Technical Note: For the purpose of X.A.II.001.j, “communication channel controllers” is the physical interface which controls the flow of synchronous or asynchronous digital information. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access.

- k. Hybrid computers and “electronic assemblies” and specially designed components therefor containing analogue-to-digital converters having all of the following characteristics:
 - 1. 32 channels or more; and
 - 2. A resolution of 14 bit (plus sign bit) or more with a conversion rate of 200 000 Hz or more.

X.D.II.001 “Program” proof and validation “software”, “software” allowing the automatic generation of “source codes”, and operating system “software” that are specially designed for “real-time processing” equipment.”

- a. “Program” proof and validation “software” using mathematical and analytical techniques and designed or modified for “programs” having more than 500 000 “source code” instructions;
- b. “Software” allowing the automatic generation of “source codes” from data acquired on line from external sensors described in the Regulation (EU) 2021/821; or

- c. Operating system “software” specially designed for “real-time processing” equipment that guarantees a “global interrupt latency time” of less than 20 µs.

Technical Note: For the purpose of X.D.II.001, “global interrupt latency time” is the time taken by the computer system to recognise an interrupt due to the event, service the interrupt and perform a context switch to an alternate memory-resident task waiting on the interrupt.

- X.D.II.002 “Software” other than that controlled in 4D001¹ specially designed or modified for the “development”, “production” or “use” of equipment controlled by 4A101¹.
- X.E.II.001 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.II.001, or “software” controlled by X.D.II.001 or X.D.II.002.
- X.E.II.002 “Technology” for the “development” or “production” of equipment designed for “multi-data-stream processing”.

¹ Ref. Annex I to Regulation (EU) 2021/821

Technical Note: For the purpose of X.E.II.002, “multi-data-stream processing” is a microprogram or equipment architecture technique that permits simultaneous processing of two or more data sequences under the control of one or more instruction sequences by means such as:

1. *Single Instruction Multiple Data (SIMD) architectures such as vector or array processors;*
2. *Multiple Single Instruction Multiple Data (MSIMD) architectures;*
3. *Multiple Instruction Multiple Data (MIMD) architectures, including those that are tightly coupled, closely coupled or loosely coupled; or*
4. *Structured arrays of processing elements, including systolic arrays.*

Category III. Part 1 – Telecommunications

Note: Category III.Part 1 does not control goods for the personal use of the natural persons.

X.A.III.101 Telecommunication equipment.

- a. Any type of telecommunications equipment, not controlled by 5A001.a¹, specially designed to operate outside the temperature range from 219 K (– 54 °C) to 397 K (124 °C).
- b. Telecommunication transmission equipment and systems, and specially designed components and accessories therefor, having any of the following characteristics, functions or features:

Note: Telecommunication transmission equipment:

- a. *Categorised as follows, or combinations thereof:*
 1. *Radio equipment (e.g., transmitters, receivers and transceivers);*
 2. *Line terminating equipment;*
 3. *Intermediate amplifier equipment;*
 4. *Repeater equipment;*
 5. *Regenerator equipment;*
 6. *Translation encoders (transcoders);*

¹ Ref. Annex I to Regulation (EU) 2021/821

7. *Multiplex equipment (statistical multiplex included);*
 8. *Modulators/demodulators (modems);*
 9. *Transmultiplex equipment (see CCITT Rec. G701);*
 10. *“Stored program controlled” digital crossconnection equipment;*
 11. *“Gateways” and bridges;*
 12. *“Media access units”; and*
- b. *Designed for use in single or multi-channel communication via any of the following:*
1. *Wire (line);*
 2. *Coaxial cable;*
 3. *Optical fibre cable;*
 4. *Electromagnetic radiation; or*
 5. *Underwater acoustic wave propagation.*

1. Employing digital techniques, including digital processing of analogue signals, and designed to operate at a “digital transfer rate” at the highest multiplex level exceeding 45 Mbit/s or a “total digital transfer rate” exceeding 90 Mbit/s;

Note: X.A.III.101.b.1 does not control equipment specially designed to be integrated and operated in any satellite system for civil use.

2. Modems using the “bandwidth of one voice channel” with a “data signalling rate” exceeding 9 600 bits per second;
3. Being “stored program controlled” digital cross connect equipment with “digital transfer rate” exceeding 8,5 Mbit/s per port;
4. Being equipment containing any of the following:
 - a. “Network access controllers” and their related common medium having a “digital transfer rate” exceeding 33 Mbit/s; or
 - b. “Communication channel controllers” with a digital output having a “data signalling rate” exceeding 64 000 bit/s per channel;

Note: If any uncontrolled equipment contains a “network access controller”, it cannot have any type of telecommunications interface, except those described in, but not controlled by X.A.III.101.b.4.

5. Employing a “laser” and having any of the following characteristics:
 - a. A transmission wavelength exceeding 1 000 nm; or
 - b. Employing analogue techniques and having a bandwidth exceeding 45 MHz;
 - c. Employing coherent optical transmission or coherent optical detection techniques (also called optical heterodyne or homodyne techniques);
 - d. Employing wavelength division multiplexing techniques; or
 - e. Performing “optical amplification”;
6. Radio equipment operating at input or output frequencies exceeding:
 - a. 31 GHz for satellite-earth station applications; or
 - b. 26,5 GHz for other applications;

Note: X.A.III.101.b.6 does not control equipment for civil use when conforming with an International Telecommunications Union (ITU) allocated band between 26,5 GHz and 31 GHz.

7. Being radio equipment employing any of the following:
 - a. Quadrature-amplitude-modulation (QAM) techniques above level 4 if the “total digital transfer rate” exceeds 8,5 Mbit/s;
 - b. QAM techniques above level 16 if the “total digital transfer rate” is equal to or less than 8,5 Mbit/s;
 - c. Other digital modulation techniques and having a “spectral efficiency” exceeding 3 bit/s/Hz; or
 - d. Operating in the 1,5 MHz to 87,5 MHz band and incorporating adaptive techniques providing more than 15 dB suppression of an interfering signal.

Notes:

1. *X.A.III.101.b.7 does not control equipment specially designed to be integrated and operated in any satellite system for civil use.*

2. *X.A.III.101.b.7 does not control radio relay equipment for operation in an International Telecommunications Union (ITU) allocated band:*
 - a. *Having any of the following:*
 1. *Not exceeding 960 MHz; or*
 2. *With a “total digital transfer rate” not exceeding 8,5 Mbit/s; and*
 - b. *Having a “spectral efficiency” not exceeding 4 bit/s/Hz.*
- c. “Stored program controlled” switching equipment and related signalling systems, having any of the following characteristics, functions or features, and specially designed components and accessories therefor:

Note: Statistical multiplexers with digital input and digital output which provide switching are treated as “stored program controlled” switches.

1. “Data (message) switching” equipment or systems designed for “packet-mode operation”, “electronic assemblies” and components therefor, other than those specified in the CML or in Regulation (EU) 2021/821;
2. Not used;
3. Routing or switching of “datagram” packets;

Note: X.A.III.101.c.3 does not control networks restricted to using only “network access controllers” or to “network access controllers” themselves.

4. Not used;
5. Multi-level priority and pre-emption for circuit switching;

Note: X.A.III.101.c.5 does not control single-level call preemption.

6. Designed for automatic hand-off of cellular radio calls to other cellular switches or automatic connection to a centralised subscriber data base common to more than one switch;

7. Containing “stored program controlled” digital cross connect equipment with “digital transfer rate” exceeding 8,5 Mbit/s per port:
8. “Common channel signalling” operating in either non-associated or quasi-associated mode of operation;
9. “Dynamic adaptive routing”;
10. Being packet switches, circuit switches and routers with ports or lines exceeding any of the following:
 - a. A “data signalling rate” of 64 000 bit/s per channel for a “communications channel controller”; or

Note: X.A.III.101.c.10.a does not control multiplex composite links composed only of communication channels not individually controlled by X.A.III.101.b.1.

- b. A “digital transfer rate” of 33 Mbit/s for a “network access controller” and related common media;

Note: X.A.III.101.c.10 does not control packet switches or routers with ports or lines not exceeding the limits in X.A.III.101.c.10.

11. “Optical switching”;
 12. Employing “Asynchronous Transfer Mode” (“ATM”) techniques.
- d. Optical fibres and optical fibre cables of more than 50 m in length designed for single mode operation;
 - e. Centralised network control having all of the following characteristics:
 1. Receives data from the nodes; and
 2. Process these data in order to provide control of traffic not requiring operator decisions, and thereby performing “dynamic adaptive routing”;

Note 1: X.A.III.101.e does not include cases of routing decisions taken on predefined information.

Note 2: X.A.III.101.e does not preclude control of traffic as a function of predictable statistical traffic conditions.

- f. Phased array antennas, operating above 10,5 GHz, containing active elements and distributed components, and designed to permit electronic control of beam shaping and pointing, except for landing systems with instruments meeting International Civil Aviation Organization (ICAO) standards (microwave landing systems (MLS));

- g. Mobile communications equipment other than those specified in the CML or in Regulation (EU) 2021/821, “electronic assemblies” and components therefor;
or
- h. Radio relay communications equipment designed for use at frequencies equal to or exceeding 19,7 GHz and components therefor, other than those specified in the CML or in Regulation (EU) 2021/821.

Technical Note: For the purpose of X.A.III.101:

- 1) *“Asynchronous transfer mode” (“ATM”) is a transfer mode in which the information is organised into cells; it is asynchronous in the sense that the recurrence of cells depends on the required or instantaneous bit rate.*
- 2) *“Bandwidth of one voice channel” is data communication equipment designed to operate in one voice channel of 3 100 Hz, as defined in CCITT Recommendation G.151.*
- 3) *“Communications channel controller” is the physical interface that controls the flow of synchronous or asynchronous digital information. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access.*

- 4) *“Datagram” is a self-contained, independent entity of data carrying sufficient information to be routed from the source to the destination data terminal equipment without reliance on earlier exchanges between this source and destination data terminal equipment and the transporting network.*
- 5) *“Fast select” is a facility applicable to virtual calls that allows data terminal equipment to expand the possibility to transmit data in call set-up and clearing “packets” beyond the basic capabilities of a virtual call.*
- 6) *“Gateway” is the function, realised by any combination of equipment and “software”, to carry out the conversion of conventions for representing, processing or communicating information used on one system into the corresponding, but different conventions used in another system.*
- 7) *“Integrated Services Digital Network” (ISDN) is a unified end- to-end digital network, in which data originating from all types of communication (e.g., voice, text, data, still and moving pictures) are transmitted from one port (terminal) in the exchange (switch) over one access line to and from the subscriber.*
- 8) *“Packet” is a group of binary digits including data and call control signals that is switched as a composite whole. The data, call control signals, and possible error control information are arranged in a specified format.*

- 9) *“Common channel signalling” means the transmission of control information (signalling) via a separate channel than that used for the messages. The signalling channel usually controls multiple message channels.*
- 10) *“Data signalling rate” means the rate, as defined in ITU Recommendation 53-36, taking into account that, for non-binary modulation, baud and bit per second are not equal. Bits for coding, checking and synchronization functions are to be included.*
- 11) *“Dynamic adaptive routing” means Automatic rerouting of traffic based on sensing and analysis of current actual network conditions*
- 12) *“Media access unit” means equipment that contains one or more communication interfaces (“network access controller”, “communications channel controller”, modem or computer bus) to connect terminal equipment to a network.*
- 13) *“Spectral efficiency” is the “digital transfer rate” [bits/s] / 6 dB spectrum bandwidth in Hz.*

14) *“Stored program controlled” is a control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions.*

Note: Equipment may be “stored program controlled” whether the electronic storage is internal or external to the equipment.

- X.B.III.101 Telecommunications test equipment, other than those specified in the CML or in Regulation (EU) 2021/821.
- X.C.III.101 Preforms of glass or of any other material optimised for the manufacture of optical fibres controlled by X.A.III.101.
- X.D.III.101 “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by X.A.III.101 and X.B.III.101, and dynamic adaptive routing “software” as described as follows:
- a. “Software”, other than in machine-executable form, specially designed for “dynamic adaptive routing”;
 - b. Not used.

X.E.III.101 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.III.101 or X.B.III.101, or “software” controlled by X.D.III.101, and other “technologies” as follows:

- a. Specific “technologies” as follows:
 1. “Technology” for the processing and application of coatings to optical fibre specially designed to make it suitable for underwater use;
 2. “Technology” for the “development” of equipment employing “Synchronous Digital Hierarchy” (“SDH”) or “Synchronous Optical Network” (“SONET”) techniques.

Technical Note: For the purpose of X.E.III.101:

- 1) *“Synchronous digital hierarchy” (SDH) is a digital hierarchy providing a means to manage, multiplex, and access various forms of digital traffic using a synchronous transmission format on different types of media. The format is based on the Synchronous Transport Module (STM) that is defined by CCITT Recommendation G.703, G.707, G.708, G.709 and others yet to be published. The first level rate of “SDH” is 155,52 Mbits/s.*

- 2) *“Synchronous optical network” (SONET) is a network providing a means to manage, multiplex and access various forms of digital traffic using a synchronous transmission format on fibre optics. The format is the North America version of “SDH” and also uses the Synchronous Transport Module (STM). However, it uses the Synchronous Transport Signal (STS) as the basic transport module with a first level rate of 51,81 Mbits/s. The SONET standards are being integrated into those of “SDH”.*

Category III. Part 2 – Information Security

Note: Category III.Part 2 does not control goods for the personal use of the natural persons.

X.A.III.201 Equipment as follows:

- a. Not used;
- b. Not used;
- c. Goods classified as mass market encryption in accordance with Cryptography Note – Note 3 to Category 5, Part 2¹.

¹ Ref. Annex I to Regulation (EU) 2021/821

X.D.III.201 “Information Security” “software” as follows:

Note: This entry does not control “software” designed or modified to protect against malicious computer damage, e.g., viruses, where the use of “cryptography” is limited to authentication, digital signature and/or the decryption of data or files.

- a. Not used;
- b. Not used;
- c. “Software” classified as mass market encryption “software” in accordance with Cryptography Note – Note 3 to Category 5, Part 2¹.

X.E.III.201 “Information Security” “technology” according to the General Technology Note, as follows:

- a. Not used;
- b. “Technology”, other than specified in the CML or in Regulation (EU) 2021/821, for the “use” of mass market goods controlled by X.A.III.201.c or mass market “software” controlled by X.D.III.201.c.

¹ Ref. Annex I to Regulation (EU) 2021/821

Category IV – Sensors and Lasers

X.A.IV.001 Marine or terrestrial acoustic equipment, capable of detecting or locating underwater objects or features or positioning surface vessels or underwater vehicles; and specially designed components, other than those specified in the CML or in Regulation (EU) 2021/821.

X.A.IV.002 Optical Sensors as follows:

- a. Image intensifier tubes and specially designed components therefor, as follows:
 1. Image intensifier tubes having all the following:
 - a. A peak response in wavelength range exceeding 400 nm, but not exceeding 1 050 nm;
 - b. A microchannel plate for electron image amplification with a hole pitch (centre-to-centre spacing) of less than 25 µm; and

- c. Having any of the following:
 - 1. An S-20, S-25 or multialkali photocathode; or
 - 2. A GaAs or GaInAs photocathode;
- 2. Specially designed microchannel plates having both of the following characteristics:
 - a. 15 000 or more hollow tubes per plate; and
 - b. Hole pitch (centre-to-centre spacing) of less than 25 µm.
- b. Direct view imaging equipment operating in the visible or infrared spectrum, incorporating image intensifier tubes having the characteristics listed in X.A.IV.002.a.1.

X.A.IV.003 Cameras as follows:

- a. Cameras that meet the criteria of Note 3 to 6A003.b.4.¹;
- b. Not used;

¹ Ref. Annex I to Regulation (EU) 2021/821

X.A.IV.004 Optics as follows:

Note: X.A.IV.004 does not control optical filters with fixed air gaps or Lyot-type filters.

a. Optical filters:

1. For wavelengths longer than 250 nm, comprised of multi-layer optical coatings and having either of the following:
 - a. Bandwidths equal to or less than 1 nm Full Width Half Intensity (FWHI) and peak transmission of 90 % or more; or
 - b. Bandwidths equal to or less than 0,1 nm FWHI and peak transmission of 50 % or more;
2. For wavelengths longer than 250 nm, and having all of the following:
 - a. Tunable over a spectral range of 500 nm or more;
 - b. Instantaneous optical bandpass of 1,25 nm or less;
 - c. Wavelength resettable within 0,1 ms to an accuracy of 1 nm or better within the tunable spectral range; and
 - d. A single peak transmission of 91 % or more;

3. Optical opacity switches (filters) with a field of view of 30° or wider and a response time equal to or less than 1 ns;
- b. “Fluoride fibre” cable, or optical fibres therefor, having an attenuation of less than 4 dB/km in the wavelength range exceeding 1 000 nm but not exceeding 3 000 nm;

Technical Note: For the purpose of X.A.IV.004.b “Fluoride fibres” are fibres manufactured from bulk fluoride compounds.

X.A.IV.005 “Lasers” as follows:

- a. Carbon dioxide (CO₂) “lasers” having any of the following:
 1. A CW output power exceeding 10 kW;
 2. A pulsed output with a “pulse duration” exceeding 10 µs; and
 - a. An average output power exceeding 10 kW; or
 - b. A pulsed “peak power” exceeding 100 kW; or

3. A pulsed output with a “pulse duration” equal to or less than 10 μ s; and
 - a. A pulse energy exceeding 5 J per pulse and “peak power” exceeding 2,5 kW; or
 - b. An average output power exceeding 2,5 kW;
- b. Semiconductor lasers, as follows:
 1. Individual, single-transverse mode semiconductor “lasers” having:
 - a. An average output power exceeding 100 mW; or
 - b. A wavelength exceeding 1 050 nm;
 2. Individual, multiple-transverse mode semiconductor “lasers”, or arrays of individual semiconductor “lasers”, having a wave-length exceeding 1 050 nm;
- c. Ruby “lasers” having an output energy exceeding 20 J per pulse;

- d. Non-“tunable” “pulsed lasers” having an output wavelength exceeding 975 nm but not exceeding 1 150 nm and having any of the following:
1. A “pulse duration” equal to or exceeding 1 ns but not exceeding 1 μ s, and having any of the following:
 - a. A single transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 12 % and an “average output power” exceeding 10 W and capable of operating at a pulse repetition frequency greater than 1 kHz; or
 2. An “average output power” exceeding 20 W; or
 - b. A multiple transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 18 % and an “average output power” exceeding 30W;
 2. A “peak power” exceeding 200 MW; or
 3. An “average output power” exceeding 50 W; or

2. A “pulse duration” exceeding 1 μs and having any of the following:
 - a. A single transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 12 % and an “average output power” exceeding 10 W and capable of operating at a pulse repetition frequency greater than 1 kHz; or
 2. An “average output power” exceeding 20 W; or
 - b. A multiple transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 18 % and an “average output power” exceeding 30 W; or
 2. An “average output power” exceeding 500 W;

- e. Non-“tunable” continuous wave “(CW) lasers”, having an output wavelength exceeding 975 nm but not exceeding 1 150 nm and having any of the following:
 - 1. A single transverse mode output and having any of the following:
 - a. A “wall-plug efficiency” exceeding 12 % and an “average output power” exceeding 10 W and capable of operating at a pulse repetition frequency greater than 1 kHz; or
 - b. An “average output power” exceeding 50 W; or
 - 2. A multiple transverse mode output and having any of the following:
 - a. A “wall-plug efficiency” exceeding 18 % and an “average output power” exceeding 30 W; or

- b. An “average output power” exceeding 500 W;

Note: X.A.IV.005.e.2.b does not control multiple transverse mode, industrial “lasers” with output power less than or equal to 2 kW with a total mass greater than 1 200kg. For the purpose of this note, total mass includes all components required to operate the “laser”, e.g., “laser”, power supply, heat exchanger, but excludes external optics for beam conditioning and/or delivery.

- f. Non-”tunable” “lasers”, having a wavelength exceeding 1 400 nm, but not exceeding 1 555 nm and having any of the following:
1. An output energy exceeding 100 mJ per pulse and a pulsed “peak power” exceeding 1 W; or
 2. An average or CW output power exceeding 1 W;

- g. Free electron “lasers”.

Technical Note: For the purpose of X.A.IV.005 “Wall-plug efficiency” is defined as the ratio of “laser” output power (or “average output power”) to total electrical input power required to operate the “laser”, including the power supply/conditioning and thermal conditioning/heat exchanger.

X.A.IV.006 “Magnetometers”, “Superconductive” electromagnetic sensors, and specially designed components therefor, as follows:

- a. “Magnetometers”, other than those specified in the CML or in Regulation (EU) 2021/821, having a “sensitivity” lower (better) than 1,0 nT (rms) per square root Hz.

Technical Note: For the purposes of X.A.IV.006.a, “sensitivity” (noise level) is the root mean square of the device-limited noise floor which is the lowest signal that can be measured.

- b. “Superconductive” electromagnetic sensors, components manufactured from “superconductive” materials:
 1. Designed for operation at temperatures below the “critical temperature” of at least one of their “superconductive” constituents (including Josephson effect devices or “superconductive” quantum interference devices (SQUIDS));
 2. Designed for sensing electromagnetic field variations at frequencies of 1 kHz or less; and

3. Having any of the following characteristics:
 - a. Incorporating thin-film SQUIDS with a minimum feature size of less than 2 μm and with associated input and output coupling circuits;
 - b. Designed to operate with a magnetic field slew rate exceeding 1×10^6 magnetic flux quanta per second;
 - c. Designed to function without magnetic shielding in the earth's ambient magnetic field; or
 - d. Having a temperature coefficient less (smaller) than 0,1 magnetic flux quantum/K.

X.A.IV.007 Gravity meters (gravimeters) for ground use, other than those specified in the CML or in Regulation (EU) 2021/821, as follows:

- a. Having a static accuracy of less (better) than 100 μGal ; or
- b. Being of the quartz element (Worden) type.

X.A.IV.008 Radar systems, equipment and major components, other than those specified in the CML or in Regulation (EU) 2021/821, and specially designed components therefor, as follows:

- a. Airborne radar equipment, other than those specified in the CML or in Regulation (EU) 2021/821, and specially designed components therefor;
- b. “Space-qualified” “laser” radar or Light Detection and Ranging (LIDAR) equipment specially designed for surveying or for meteorological observation;
- c. Millimeter wave enhanced vision radar imaging systems specially designed for rotary wing aircraft and having all of the following:
 1. Operates at a frequency of 94 GHz;
 2. An average output power of less than 20 mW;
 3. Radar beam width of 1 degree; and
 4. Operating range equal to or greater than 1 500 m.

X.A.IV.009 Specific processing equipment, as follows:

- a. Seismic detection equipment not controlled by X.A.IV.009.c;
- b. Radiation hardened TV cameras, other than those specified in the CML or in Regulation (EU) 2021/821; or
- c. Seismic intrusion detection systems that detect, classify and determine the bearing on the source of a detected signal.

X.B.IV.001 Equipment, including tools, dies, fixtures or gauges, and other specially designed components and accessories therefor, specially designed or modified for any of the following:

- a. For the manufacture or inspection of:
 1. Free electron “laser” magnet wigglers;
 2. Free electron “laser” photo injectors;
- b. For the adjustment, to required tolerances, of the longitudinal magnetic field of free electron “lasers”.

X.C.IV.001 Optical sensing fibres that are modified structurally to have a “beat length” of less than 500 mm (high birefringence) or optical sensor materials not described in 6C002.b¹ and having a zinc content of equal to or more than 6 % by “mole fraction”.

Technical Note: For the purpose of X.C.IV.001:

- 1) “Mole fraction” is defined as the ratio of moles of ZnTe to the sum of the moles of CdTe and ZnTe present in the crystal.
- 2) “Beat length” is the distance over which two orthogonally polarised signals, initially in phase, must pass in order to achieve a 2 Pi radian(s) phase difference.

X.C.IV.002 Optical materials, as follows:

a. Low optical absorption materials, as follows:

1. Bulk fluoride compounds containing ingredients with a purity of 99,999 % or better; or

Note: X.C.IV.002.a.1 controls fluorides of zirconium or aluminium and variants.

¹ Ref. Annex I to Regulation (EU) 2021/821

2. Bulk fluoride glass made from compounds controlled by 6C004.e.1¹;
- b. “Optical fibre preforms” made from bulk fluoride compounds containing ingredients with a purity of 99,999 % or better, specially designed for the manufacture of “fluoride fibres” controlled by X.A.IV.004.b.

Technical Note: For the purpose of X.C.IV.002:

- 1) *“Fluoride fibres” are fibres manufactured from bulk fluoride compounds.*
- 2) *“Optical fibre preforms” are bars, ingots, or rods of glass, plastic or other materials that have been specially processed for use in fabricating optical fibres. The characteristics of the preform determine the basic parameters of the resultant drawn optical fibres.*

X.D.IV.001 “Software”, other than those specified in the CML or in Regulation (EU) 2021/821, specially designed for the “development”, “production”, or “use” of goods controlled by 6A002, 6A003¹, X.A.IV.001, X.A.IV.006, X.A.IV.007, or X.A.IV.008.

X.D.IV.002 “Software” specially designed for the “development” or “production” of equipment controlled by X.A.IV.002, X.A.IV.004, or X.A.IV.005.

¹ Ref. Annex I to Regulation (EU) 2021/821

X.D.IV.003 Other “software”, as follows:

- a. Air Traffic Control (ATC) “software” application “programs” hosted on general purpose computers located at Air Traffic Control centres, and capable of automatically handing over primary radar target data (if not correlated with secondary surveillance radar (SSR) data) from the host ATC centre to another ATC centre;
- b. “Software” specially designed for seismic intrusion detection systems in X.A.IV.009.c; or
- c. “Source code” specially designed for seismic intrusion detection systems in X.A.IV.009.c.

X.E.IV.001 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.IV.001, X.A.IV.006, X.A.IV.007, X.A.IV.008 or X.A.IV.009.c.

X.E.IV.002 “Technology” for the “development” or “production” of equipment, materials or “software” controlled by X.A.IV.002, X.A.IV.004, or X.A.IV.005, X.B.IV.001, X.C.IV.001, X.C.IV.002, or X.D.IV.003.

X.E.IV.003 Other “technology” as follows:

- a. Optical fabrication technologies for serially producing optical components at a rate exceeding 10 m² of surface area per year on any single spindle and having all of the following:
 1. Area exceeding 1 m²; and
 2. Surface figure exceeding $\lambda/10$ (rms) at the designed wavelength;
- b. “Technology” for optical filters with a bandwidth equal to or less than 10 nm, a field of view (FOV) exceeding 40° and a resolution exceeding 0,75 line pairs per milliradian;
- c. “Technology” for the “development” or “production” of cameras controlled by X.A.IV.003;

- d. “Technology” “required” for the “development” or “production” of non-triaxial fluxgate “magnetometers” or non-triaxial fluxgate “magnetometer” systems, having any of the following:
1. “Sensitivity” lower (better) than 0,05 nT (rms) per square root Hz at frequencies of less than 1 Hz; or
 2. “Sensitivity” lower (better) than 1×10^{-3} nT (rms) per square root Hz at frequencies of 1 Hz or more.
- e. “Technology” “required” for the “development” or “production” of infrared up-conversion devices having all of the following:
1. A response in the wavelength range exceeding 700 nm but not exceeding 1 500 nm; and
 2. A combination of an infrared photodetector, light emitting diode (OLED), and nanocrystal to convert infrared light into visible light.

Technical Note: For the purposes of X.E.IV.003, “sensitivity” (or noise level) is the root mean square of the device-limited noise floor which is the lowest signal that can be measured.

Category V – Navigation and Avionics

X.A.V.001 Airborne communication equipment, all “aircraft” inertial navigation systems, and other avionic equipment, including components, other than those specified in the CML or in Regulation (EU) 2021/821.

Note 1: X.A.V.001. does not control headsets or microphones.

Note 2: X.A.V.001. does not control goods for the personal use of the natural persons.

X.B.V.001 Other equipment specially designed for the test, inspection, or “production” of navigation and avionics equipment.

X.D.V.001 “Software”, other than specified in the CML or in Regulation (EU) 2021/821, for the “development”, “production”, or “use” of navigation, airborne communication and other avionics.

X.E.V.001 “Technology”, other than specified in the CML or in Regulation (EU) 2021/821, for the “development”, “production” or “use” of navigation, airborne communication, and other avionics equipment.

Category VI – Marine

X.A.VI.001 Vessels, marine systems or equipment, and specially designed components therefor, components and accessories as follows:

- a. Underwater vision systems, as follows:
 1. Television systems (comprising camera, lights, monitoring and signal transmission equipment) having a limiting resolution when measured in air of more than 500 lines and specially designed or modified for remote operation with a submersible vehicle; or
 2. Underwater television cameras having a limiting resolution when measured in air of more than 700 lines;

Technical Note: Limiting resolution in television is a measure of horizontal resolution usually expressed in terms of the maximum number of lines per picture height discriminated on a test chart, using IEEE Standard 208/1960 or any equivalent standard.

- b. Photographic still cameras specially designed or modified for underwater use, having a film format of 35 mm or larger, and having autofocus or remote focusing specially designed for underwater use;
- c. Stroboscopic light systems, specially designed or modified for underwater use, capable of a light output energy of more than 300 J per flash;
- d. Other underwater camera equipment, other than those specified in the CML or in Regulation (EU) 2021/821;
- e. Not used;
- f. Vessels (surface or underwater), including inflatable boats, and specially designed components therefor, other than those specified in the CML or in Regulation (EU) 2021/821;

Note: X.A.VI.001.f does not control vessels on temporary sojourn, used for private transport or for the transport of passengers or goods from or through the customs territory of the Union.

- g. Marine engines (both inboard and outboard) and submarine engines and specially designed components therefor, other than those specified in the CML or in Regulation (EU) 2021/821;
- h. Self-contained underwater breathing apparatus (scuba gear) and accessories therefor, other than those specified in the CML or in Regulation (EU) 2021/821;
- i. Life jackets, inflation cartridges, dive compasses and dive computers;

Note: X.A.VI.001.i does not control goods for the personal use of the natural persons.

- j. Underwater lights and propulsion equipment; or

Note: X.A.VI.001.j does not control goods for the personal use of the natural persons.

- k. Air compressors and filtration system specially designed for filling air cylinders.

- X.D.VI.001 “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by X.A.VI.001.
- X.D.VI.002 “Software” specially designed for the operation of unmanned submersible vehicles used in the oil and gas industry.
- X.E.VI.001 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.VI.001.

Category VII – Aerospace and Propulsion

- X.A.VII.001 Diesel engines, and tractors and specially designed components therefor, other than those specified in the CML or in Regulation (EU) 2021/821:
- a. Diesel engines, other than those specified in the CML or in Regulation (EU) 2021/821, for trucks, tractors, and automotive applications, having an overall power output of 298 kW or more.
 - b. Off highway wheel tractors of carriage capacity 9 tonnes or more; and major components and accessories, other than those specified in the CML or in Regulation (EU) 2021/821.

- c. Road tractors for semi-trailers, with single or tandem rear axles rated for 9 tonnes per axel or more and specially designed major components.

Note: X.A.VII.001.b and X.A.VII.001.c do not control vehicles on temporary sojourn, used for private transport or for the transport of passengers or goods from or through the customs territory of the Union.

X.A.VII.002 Gas turbine engines and components, other than those specified in the CML or in Regulation (EU) 2021/821.

- a. Not used.
- b. Not used.
- c. Aero gas turbine engines and components specially designed therefor.
- d. Not used.
- e. Pressurised aircraft breathing equipment components specially designed therefor, other than those specified in the CML or in Regulation (EU) 2021/821.

X.A.VII.003 Aircraft engines, other than those specified in X.A.VII.002, the CML or in Regulation (EU) 2021/821, as follows:

- a. Reciprocating or rotary internal combustion piston engines; or
- b. Electric engines.

Technical Note: For the purpose of X.A.VII.003 aircrafts includes: aeroplanes, UAVs, helicopters, autogyros, hybrid aircrafts or radio-controlled models.

X.B.VII.001 Vibration test equipment and specially designed components, other than those specified in the CML or in Regulation (EU) 2021/821.

Note: X.B.VII.001 controls only equipment for the “development” or “production”. It does not control condition monitoring systems.

X.B.VII.002 Specially designed equipment, tooling or fixtures for manufacturing or measuring gas turbine blades, vanes or tip shroud castings, as follows:

- a. Automated equipment using non-mechanical methods for measuring airfoil wall thickness;

- b. Tooling, fixtures or measuring equipment for the “laser”, water jet or ECM/EDM hole drilling processes controlled by 9E003.c¹;
- c. Ceramic core leaching equipment;
- d. Ceramic core manufacturing equipment or tools;
- e. Ceramic shell wax pattern preparation equipment;
- f. Ceramic shell burn out or firing equipment.

X.D.VII.001 “Software”, other than those specified in the CML or in Regulation (EU) 2021/821, for the “development” or “production” of equipment controlled by X.A.VII.001 or X.B.VII.001.

X.D.VII.002 “Software”, for the “development” or “production” of equipment controlled by X.A.VII.002 or X.B.VII.002.

X.E.VII.001 “Technology”, other than those specified in the CML or in Regulation (EU) 2021/821, for the “development” or “production” or “use” of equipment controlled by X.A.VII.001 or X.B.VII.001.

¹ Ref. Annex I to Regulation (EU) 2021/821

X.E.VII.002 “Technology”, for the “development”, “production” or “use” of equipment controlled by X.A.VII.002 or X.B.VII.002.

X.E.VII.003 Other “technology”, not described by 9E003¹, as follows:

- a. Rotor blade tip clearance control systems employing active compensating casing “technology” limited to a design and development data base; or
- b. Gas bearing for turbine engine rotor assemblies.

Category VIII – Miscellaneous items

X.A.VIII.001 Equipment for oil production or oil exploration as follows:

- a. Drill head integrated measurement equipment, including inertial navigation systems for measurement while drilling (MWD);
- b. Gas monitoring systems and detectors therefor, designed for continuous operation and detection of hydrogen sulphide;
- c. Equipment for seismological measurements, including reflection seismetics and seismic vibrators;
- d. Sediment echo sounders.

¹ Ref. Annex I to Regulation (EU) 2021/821

X.A.VIII.002 Equipment, “electronic assemblies” and components, specially designed for quantum computers, quantum electronics, quantum sensors, quantum processing units, qubit circuits, qubit devices or quantum radar systems, including pockels cells.

Note 1: Quantum computers perform computations that harness the collective properties of quantum states, such as superposition, interference and entanglement.

Note 2: Units, circuits and devices include but are not limited to superconducting circuits, Quantum annealing, Ion Trap, photonic interaction, silicon/spin, cold atoms.

X.A.VIII.003 Microscopes, related equipment and detectors as follows:

- a. Scanning electron microscopes (SEM);
- b. Scanning auger microscopes;
- c. Transmission electron microscopes (TEM);
- d. Atomic force microscopes (AFM);

- e. Scanning force microscopes (SFM);
- f. Equipment and detectors, specially designed for use with the microscopes specified in X.A.VIII.003.a to X.A.VIII.0003.e, employing any of the following material analysis techniques:
 - 1. X-ray photo spectroscopy (XPS);
 - 2. Energy-dispersive X-ray spectroscopy (EDX, EDS) or
 - 3. Electron spectroscopy for chemical analysis (ESCA).

X.A.VIII.004 Collector equipment for metal ores in deep seabed.

X.A.VIII.005 Manufacturing equipment and machine tools as follows:

- a. Additive manufacturing equipment for the “production” of metal parts;

Note: X.A.VIII.005.a only applies to the following systems:

- 1. Powder-bed systems using selective laser melting (SLM), laser curing, direct metal laser sintering (DMLS) or electron beam melting (EBM); or
- 2. Powder-fed systems using laser cladding, direct energy deposition or laser metal deposition.

- b. Additive manufacturing equipment for “energetic materials”, including equipment using ultrasonic extrusion;
- c. Vat photopolymerization (VVP) additive manufacturing equipment using stereo lithography (SLA) or digital light processing (DLP).

X.A.VIII.006 Equipment for the “production” of printed electronics for organic light emitting diodes (OLED), organic field-effect transistors (OFET) or organic photovoltaic cells (OPVC).

X.A.VIII.007 Equipment for the “production” of microelectromechanical systems (MEMS) using the mechanical properties of silicon, including sensors in chip format like pressure membranes, bending beams or micro adjustment devices.

X.A.VIII.008 Equipment, specially designed for the production of E-Fuels (electrofuels and synthetic fuels) or ultra efficient solar cells (efficiency > 30 %).

X.A.VIII.009 Equipment for Ultra-High-Vacuum (UHV) as follows:

- a. UHV pumps (sublimation, turbomolecular, diffusion, cryogenic, ion getter);
- b. UHV pressure gauges.

Note: UHV means 100 nanoPascals (nPa) or lower.

X.A.VIII.010 “Cryogenic refrigeration systems” designed to maintain temperatures below 1,1 K for 48 hrs or more and related cryogenic refrigeration equipment as follows:

- a. Pulse Tubes;
- b. Cryostats;
- c. Dewars;
- d. Gas Handling System (GHS);
- e. Compressors; or
- f. Control Units.

Note: “Cryogenic refrigeration systems” include but are not limited to Dilution Refrigeration, Adiabatic Demagnisation Refrigerators and Laser Cooling Systems.

X.A.VIII.011 “Decapsulation” equipment for semiconductor devices.

Note: “Decapsulation” is the removal of a cap, lid, or encapsulating material from a packaged integrated circuit by mechanical, thermal, or chemical means.

X.A.VIII.012 High Quantum Efficiency (QE) photodetectors with a QE greater than 80 % in the wavelength range exceeding 400 nm but not exceeding 1 600 nm.

X.A.VIII.013 Numerical controlled machine tools, having one or more linear axis with a travel length greater than 8 000 mm.

X.A.VIII.014 Water cannon systems for riot or crowd control, and components specially designed therefor.

Note: X.A.VIII.014 water cannon systems include, for example: vehicles or fixed stations equipped with remotely operated water cannon that are designed to protect the operator from an outside riot with features such as armor, shatter resistant windows, metal screens, bull-bars, or run-flat tires. Components specially designed for water cannons may include, for example: deck gun water nozzles, pumps, reservoirs, cameras, and lights that are hardened or shielded against projectiles, elevating masts for those items, and teleoperation systems for those items.

- X.A.VIII.015 Law enforcement striking weapons, including saps, police batons, side handle batons, tonfas, sjamboks, and whips.
- X.A.VIII.016 Police helmets and shields; and specially designed components, other than those specified in the CML or in Regulation (EU) 2021/821.
- X.A.VIII.017 Law enforcement restraint devices, including leg irons, shackles, and handcuffs; straight jackets; stun cuffs; shock belts; shock sleeves; multipoint restraint devices such as restraint chairs; and specially designed components and accessories, other than those specified in the CML or in Regulation (EU) 2021/821.

Note: X.A.VIII.017 applies to restraint devices used in law enforcement activities. It does not apply to medical devices that are equipped to restrain patient movement during medical procedures. It does not apply to devices that confine memory impaired patients to appropriate medical facilities. It does not apply to safety equipment such as safety belts or child automobile safety seats.

X.A.VIII.018 Oil and gas exploration equipment, “software”, and data, as follows (see List of Items Controlled):

- a. Not used.
- b. Hydraulic fracturing items, as follows:
 1. Hydraulic fracturing design and analysis “software” and data;
 2. Hydraulic fracturing “proppant”, “fracking fluid”, and chemical additives therefor; or
 3. High pressure pumps.

Technical Note:

A “proppant” is a solid material, typically treated sand or man-made ceramic materials, designed to keep an induced hydraulic fracture open, during or following a fracturing treatment. It is added to a “fracking fluid” which may vary in composition depending on the type of fracturing used, and can be gel, foam or slickwater-based.

X.A.VIII.019 Specific processing equipment, as follows (see List of Items Controlled):

- a. Ring magnets;
- b. Not used.

X.A.VIII.020 Weapons and devices designed for the purpose of riot control or self-protection, as follows:

- a. Portable electric discharge weapons that can target only one individual each time an electric shock is administered, including but not limited to electric shock batons, electric shock shields, stun guns and electric shock dart guns;
- b. Kits containing all essential components for assembly of portable electric discharge weapons controlled by item X.A.VIII.020.a; or

Note: The following goods are considered to be essential components:

- 1. *The unit producing an electric shock;*
 - 2. *The switch, whether or not on a remote control; and*
 - 3. *The electrodes or, where applicable, the wires through which the electrical shock is to be administered.*
- c. Fixed or mountable electric discharge weapons that cover a wide area and can target multiple individuals with electrical shocks.

X.A.VIII.021 Weapons and equipment disseminating incapacitating or irritating chemical substances for the purpose of riot control or self-protection and certain related substances, as follows:

- a. Portable weapons and equipment which either administer a dose of an incapacitating or irritating chemical substance that targets one individual or disseminate a dose of such substance affecting a small area, e.g. in the form of a spray fog or cloud, when the chemical substance is administered or disseminated;

Note 1: This item does not control equipment controlled by item ML7(e) of the CML of the European Union.

Note 2: This item does not control individual portable equipment, even if containing a chemical substance, when accompanying their user for the user's own personal protection.

Note 3: In addition to relevant chemical substances, such as riot control agents or PAVA, the goods controlled by items X.A.VIII.021.c and X.A.VIII.021.d shall be deemed to be incapacitating or irritating chemical substances.

- b. Pelargonic acid vanillylamide (PAVA) (CAS 2444-46-4);
- c. Oleoresin capsicum (OC) (CAS 8023-77-6);
- d. Mixtures containing at least 0,3 % by weight of PAVA or OC and a solvent (such as ethanol, 1-propanol or hexane), which could be administered as such as incapacitating or irritating agents, in particular in aerosols and in liquid form, or used for manufacturing of incapacitating or irritating agents;

Note 1: This item does not control sauces and preparations therefor, soups or preparations therefor and mixed condiments or seasonings, provided that PAVA or OC is not the only constituent flavour in them.

Note 2: This item does not control medicinal products for which a marketing authorisation has been granted in accordance with Union law.

- e. Fixed equipment for the dissemination of incapacitating or irritating chemical substances, which can be attached to a wall or to a ceiling inside a building, comprises a canister of irritating or incapacitating chemical agents and is activated using a remote control system; or

Note: In addition to relevant chemical substances, such as riot control agents or PAVA, the goods controlled by items X.A.VIII.021.c and X.A.VIII.021.d shall be deemed to be incapacitating or irritating chemical substances.

- f. Fixed or mountable equipment for the dissemination of incapacitating or irritating chemical agents that covers a wide area and is not designed to be attached to a wall or to a ceiling inside a building;

Note 1: This item does not control equipment controlled by item ML7(e) of the CML of the European Union.

Note 2: In addition to relevant chemical substances, such as riot control agents or PAVA, the goods controlled by items X.A.VIII.021.c and X.A.VIII.021.d shall be deemed to be incapacitating or irritating chemical substances.

- g. Other irritating chemical substances, and mixtures thereof containing at least 0,3 % by weight of the active substance, as follows:
1. Dibenzob[b,f][1,4]oxazepine (CR) (CAS 257-07-8);
 2. 8-Methyl-N-vanillyl-trans-6-nonenamide (capsaicin) (CAS 404-86-4);
 3. 8-Methyl-N-vanillylnonamide (dihydrocapsaicin) (CAS 19408-84-5);
 4. N-Vanillyl-9-methyldec-7-(E)-enamide (homocapsaicin) (CAS 58493-48-4);
 5. N-Vanillyl-9-methyldecanamide (homodihydrocapsaicin) (CAS 20279-06-5);
 6. N-Vanillyl-7-methyloctanamide (nordihydrocapsaicin) (CAS 28789-35-7);
 7. 4-Nonanolylmorpholine (MPA) (CAS 5299-64-9);
 8. Cis-4-acetylamino-dicyclohexylmethane (CAS 37794-87-9);
 9. N,N'-Bis(isopropyl)ethylenediimine; or
 10. N,N'-Bis(tert-butyl)ethylenediimine.

X.A.VIII.022 Products which could be used for the execution of human beings by means of lethal injection, as follows:

- a. Short and intermediate acting barbiturate anaesthetic agents including, but not limited to:
 1. Amobarbital (CAS 57-43-2);
 2. Amobarbital sodium salt (CAS 64-43-7);
 3. Pentobarbital (CAS 76-74-4);
 4. Pentobarbital sodium salt (CAS 57-33-0);
 5. Secobarbital (CAS 76-73-3);
 6. Secobarbital sodium salt (CAS 309-43-3);
 7. Thiopental (CAS 76-75-5); or
 8. Thiopental sodium salt (CAS 71-73-8), also known as thiopentone sodium;
- b. Products containing one of the anaesthetic agents listed under X.A.VIII.022.a.

X.A.VIII.023 Nettings, canopies, tents, blankets and apparel, specially designed for camouflage.

X.B.VIII.001 Specific processing equipment, as follows (see List of Items Controlled):

- a. Hot cells; or
- b. Glove boxes suitable for use with radioactive materials.

X.C.VIII.001 Metal powders and metal alloy powders, usable for any of the systems listed in X.A.VIII.005.a.

X.C.VIII.002 Advanced materials as follows:

- a. Materials for cloaking or adaptive camouflage;
- b. Metamaterials, e.g. with a negative refractive index;
- c. Not used;
- d. High entropy alloys (HEA);
- e. Heusler compounds; or
- f. Kitaev materials, including kitaev spin liquids.

X.C.VIII.003 Conjugated polymers (conductive, semiconductive, electroluminescent) for printed or organic electronics.

X.C.VIII.004 Energetic materials as follows and mixtures thereof:

- a. Ammonium picrate (CAS 131-74-8);
- b. Black powder;
- c. Hexanitrodiphenylamine (CAS 131-73-7);
- d. Difluoroamine(CAS 10405-27-3);
- e. Nitrostarch (CAS9056-38-6);
- f. Not used;
- g. Tetranitronaphthalene;
- h. Trinitroanisole;
- i. Trinitronaphthalene;
- j. Trinitroxylyene;
- k. N-pyrrolidinone; 1-methyl-2-pyrrolidinone (CAS 872-50-4);

- l. Dioctylmaleate (CAS 142-16-5);
- m. Ethylhexylacrylate (CAS 103-11-7);
- n. Triethylaluminium (TEA) (CAS 97-93-8), trimethylaluminium (TMA) (CAS 75-24-1), and other pyrophoric metal alkyls and aryls of lithium, sodium, magnesium, zinc or boron;
- o. Nitrocellulose (CAS 9004-70-0);
- p. Nitroglycerin (or glyceroltrinitrate, trinitroglycerine) (NG) (CAS 55-63-0);
- q. 2,4,6-trinitrotoluene (TNT) (CAS 118-96-7);
- r. Ethylenediaminedinitrate (EDDN) (CAS 20829-66-7);
- s. Pentaerythritoltetranitrate (PETN) (CAS 78-11-5);
- t. Lead azide (CAS 13424-46-9), normal lead styphnate (CAS 15245-44-0) and basic lead styphnate (CAS 12403-82-6), and primary explosives or priming compositions containing azides or azide complexes;
- u. Not used;

- v. Not used;
- w. Diethyldiphenylurea (CAS 85-98-3); dimethyldiphenylurea (CAS 611-92-7); methylethyldiphenyl urea.
- x. N,N-diphenylurea (unsymmetrical diphenylurea) (CAS 603-54-3);
- y. Methyl-N,N-diphenylurea (methyl unsymmetrical diphenylurea) (CAS 13114-72-2);
- z. Ethyl-N,N-diphenylurea (ethyl unsymmetrical diphenylurea) (CAS 64544-71-4);
- aa. Not used;
- bb. 4-Nitrodiphenylamine (4-NDPA)(CAS 836-30-6);
- cc. 2,2-dinitropropanol (CAS 918-52-5); or
- dd. Not used.

X.D.VIII.001 “Software”, specially designed for the “development”, “production” or “use” of equipment specified in X.A.VIII.005 to X.A.VIII.0013.

X.D.VIII.002 “Software”, specially designed for the “development”, “production” or “use” of equipment, “electronic assemblies” or components specified in X.A.VIII.002.

X.D.VIII.003 “Software” for digital twins of additive manufacturing products or for the determination of the reliability of additive manufacturing products.

X.D.VIII.004 “Software” specially designed for the “development,” “production” or “use” of commodities controlled by X.A.VIII.014.

X.D.VIII.005 Specific “software”, as follows (see List of Items Controlled):

- a. “Software” for neutronic calculations/modeling;
- b. “Software” for radiation transport calculations/modeling; or
- c. “Software” for hydrodynamic calculations/modeling.

X.E.VIII.001 “Technology” for the “development”, “production” or “use” of equipment specified in X.A.VIII.001 to X.A.VIII.0013.

- X.E.VIII.002 “Technology” for the “development”, “production” or “use” of materials specified in X.C.VIII.002 or X.C.VIII.003
- X.E.VIII.003 “Technology” for digital twins of additive manufacturing products, for the determination of the reliability of additive manufacturing products or for “software” specified in X.D.VIII.003.
- X.E.VIII.004 “Technology” for the “development”, “production” or “use” of “software” specified in X.D.VIII.001 to X.D.VIII.002.
- X.E.VIII.005 “Technology” “required” for the “development” or “production” of commodities controlled by X.A.VIII.014.
- X.E.VIII.006 “Technology” exclusively for the “development” or “production” of equipment controlled by X.A.VIII.017.

Category IX – Special Materials and Related Equipment

- X.A.IX.001 Chemical agents, including tear gas formulation containing 1 % or less of orthochlorobenzalmalononitrile (CS), or 1 % or less of chloroacetophenone (CN), except in individual containers with a net weight of 20 g or less; liquid pepper except when packaged in individual containers with a net weight of 85,05 g or less; smoke bombs; non-irritant smoke flares, canisters, grenades and charges; and other pyrotechnic articles having dual military and commercial use, and components specially designed therefor, other than those specified in the CML or in Regulation (EU) 2021/821.
- X.A.IX.002 Fingerprinting powders, dyes, and inks.
- X.A.IX.003 Protective and detection equipment not specially designed for military use and not controlled by 1A004 or 2B351¹, as follows (see List of Items Controlled), and components not specially designed for military use and not controlled by 1A004 or 2B351 therefor:
- a. Personal radiation monitoring dosimeters; or
 - b. Equipment limited by design or function to protect against hazards specific to civil industries, such as mining, quarrying, agriculture, pharmaceuticals, medical, veterinary, environmental, waste management, or to the food industry.

¹ Ref. Annex I to Regulation (EU) 2021/821

Note: X.A.IX.003 does not control items for protection against chemical or biological agents that are consumer goods, packaged for retail sale or personal use, or medical products, such as latex exam gloves, latex surgical gloves, liquid disinfectant soap, disposable surgical drapes, surgical gowns, surgical foot covers, and surgical masks.

- X.A.IX.004 Specific processing equipment, other than those specified in the CML or in Regulation (EU) 2021/821, as follows (see List of Items Controlled):
- a. Radiation detection, monitoring and measurement equipment, other than those specified in the CML or in Regulation (EU) 2021/821; or
 - b. Radiographic detection equipment such as X-ray converters, and storage phosphor image plates.
- X.B.IX.001 Specific processing equipment, other than those specified in the CML or in Regulation (EU) 2021/821, as follows (see List of Items Controlled):
- a. Electrolytic cells for fluorine production, other than those specified in the CML or in Regulation (EU) 2021/821;

- b. Particle accelerators;
- c. Industrial process control hardware/systems designed for power industries, other than those specified in the CML or in Regulation (EU) 2021/821;
- d. Freon and chilled water cooling systems capable of continuous cooling duties of 29,3 kW/hr or greater; or
- e. Equipment for the production of structural composites, fibres, prepregs and preforms.

X.C.IX.001 Separate chemically defined compounds according to Note 1 to Chapters 28 and 29 of the Combined Nomenclature:

- a. In concentrations of 95 % weight or greater, as follows:
 - 1. Ethylene dichloride (CAS 107-06-2);
 - 2. Nitromethane (CAS 75-52-5);
 - 3. Picric acid (CAS 88-89-1);
 - 4. Aluminium chloride (CAS 7446-70-0);

5. Arsenic (CAS 7440-38-2);
6. Arsenic trioxide (CAS 1327-53-3);
7. Bis(2-chloroethyl)ethylamine hydrochloride (CAS 3590-07-6);
8. Bis(2-chloroethyl)methylamine hydrochloride (CAS 55-86-7);
9. Tris(2-chloroethyl)amine hydrochloride (CAS 817-09-4);
10. Tributylphosphite (CAS 102-85-2);
11. Isocyanatomethane (CAS 624-83-9);
12. Quinaldine (CAS 91-63-4);
13. 2-bromochloroethane (CAS 107-04-0);
14. Benzil (CAS 134-81-6);
15. Diethyl ether (CAS 60-29-7);
16. Dimethyl ether (CAS 115-10-6);

17. Dimethylaminoethanol (CAS 108-01-0);
18. 2-methoxyethanol (CAS 109-86-4);
19. Butyrylcholinesterase (BCHE);
20. Diethylenetriamine (CAS 111-40-0);
21. Dichloromethane (CAS 75-09-2);
22. Dimethylaniline (CAS 121-69-7);
23. Ethyl bromide (CAS 74-96-4);
24. Ethyl chloride (CAS 75-00-3);
25. Ethylamine (CAS 75-04-7);
26. Hexamine (CAS 100-97-0);
27. Isopropanol (CAS 67- 63-0);
28. Isopropyl bromide (CAS 75-26-3);

29. Isopropyl ether (CAS 108-20-3);
30. Methylamine (CAS 74-89-5);
31. Methyl bromide (CAS 74-83-9);
32. Monoisopropylamine (CAS 75-31-0);
33. Obidoxime chloride (CAS 114-90-9);
34. Potassium bromide (CAS 7758-02-3);
35. Pyridine (CAS 110-86-1);
36. Pyridostigmine bromide (CAS 101-26-8);
37. Sodium bromide (CAS 7647-15-6);
38. Sodium metal (CAS 7440-23-5);
39. Tributylamine (CAS 102-82-9);
40. Triethylamine (CAS 121-44-8); or
41. Trimethylamine (CAS 75-50-3).

- b. In concentrations of 90 % weight or greater, as follows:
1. Acetone (CAS 67-64-1);
 2. Acetylene (CAS 74-86-2);
 3. Ammonia (CAS 7664-41-7);
 4. Antimony (CAS 7440-36-0);
 5. Benzaldehyde (CAS 100-52-7);
 6. Benzoin (CAS 119-53-9);
 7. 1-Butanol (CAS 71-36-3);
 8. 2-Butanol (CAS 78-92-2);
 9. Iso-Butanol (CAS 78-83-1);
 10. Tert-Butanol (CAS 75-65-0);
 11. Calcium carbide (CAS 75-20-7);
 12. Carbon monoxide (CAS 630-08-0);

13. Chlorine (CAS 7782-50-5);
14. Cyclohexanol (CAS 108-93-0);
15. Dicyclohexylamine (CAS 101-83-7);
16. Ethanol (CAS 64-17-5);
17. Ethylene (CAS 74-85-1);
18. Ethylene oxide (CAS 75-21-8);
19. Fluoroapatite (CAS 1306-05-4);
20. Hydrogen chloride (CAS 7647-01-0);
21. Hydrogen sulfide (CAS 7783-06-4);
22. Mandelic acid (CAS 90-64-2);
23. Methanol (CAS 67-56-1);
24. Methyl chloride (CAS 74-87-3);
25. Methyl iodide (CAS 74-88-4);

26. Methyl mercaptan (CAS 74-93-1);
27. Monoethyleneglycol (CAS 107-21-1);
28. Oxalyl chloride (CAS 79-37-8);
29. Potassium sulphide (CAS 1312-73-8);
30. Potassium thiocyanate (CAS 333-20-0);
31. Sodium hypochlorite (CAS 7681-52-9);
32. Sulphur (CAS 7704-34-9);
33. Sulphur dioxide (CAS 7446-09-5);
34. Sulphur trioxide (CAS 7446-11-9);
35. Thiophosphoryl chloride (CAS 3982-91-0);
36. Tri-isobutyl phosphite (CAS 1606-96-8);
37. White phosphorus (CAS 12185-10-3);
38. Yellow phosphorus (CAS 7723-14-0);

39. Mercury (CAS 7439-97-6);
40. Barium chloride (CAS 10361-37-2);
41. Sulphuric acid (CAS 7664-93-9);
42. 3,3-dimethyl-1-butene (CAS 558-37-2);
43. 2,2-dimethylpropanal (CAS 630-19-3);
44. 2,2-dimethylpropylchloride (CAS 753-89-9);
45. 2-methylbutene (CAS 26760-64-5);
46. 2-chloro-3-methylbutane (CAS 631-65-2);
47. 2,3-dimethyl-2,3-butanediol (CAS 76-09-5);
48. 2-methyl-2-butene (CAS 513-35-9);
49. Butyl lithium (CAS 109-72-8);
50. Bromo(methyl)magnesium (CAS 75-16-1);

51. Formaldehyde (CAS 50-00-0);
52. Diethanolamine (CAS 111-42-2);
53. Dimethylcarbonate (CAS 616-38-6);
54. Methyldiethanolamine hydrochloride (CAS 54060-15-0);
55. Diethylamine hydrochloride (CAS 660-68-4);
56. Diisopropylamine hydrochloride (CAS 819-79-4);
57. 3-Quinuclidinone hydrochloride (CAS 1193-65-3);
58. 3-Quinuclidinol hydrochloride (CAS 6238-13-7);
59. (R)-3- Quinuclidinol hydrochloride (CAS 42437-96-7); or
60. N,N-Diethylaminoethanol hydrochloride (CAS 14426-20-1).

X.C.IX.002 Fentanyl and its derivatives Alfentanil, Sufentanil, Remifentanil, Carfentanil, and salts thereof.

Note: X.C.IX.002 does not control products identified as consumer goods packaged for retail sale for personal use or packaged for individual use.

X.C.IX.003 Chemical precursors to Central Nervous System Acting Chemicals, as follows:

- a. 4-anilino-N-phenethylpiperidine (CAS 21409-26-7); or
- b. N-phenethyl-4-piperidone (CAS 39742-60-4).

Notes:

1. *X.C.IX.003 does not control “chemical mixtures” containing one or more of the chemicals specified in entry X.C.IX.003 in which no individually specified chemical constitutes more than 1 % by the weight of the mixture.*
2. *X.C.IX.003 does not control products identified as consumer goods packaged for retail sale for personal use or packaged for individual use.*

X.C.IX.004 Fibrous and filamentary materials, not controlled by 1C010 or 1C210¹, for use in “composite” structures and with a specific modulus of $3,18 \times 10^6$ m or greater and a specific tensile strength of $7,62 \times 10^4$ m or greater.

X.C.IX.005 “Vaccines”, “immunotoxins”, “medical products”, “diagnostic and food testing kits”, as follows (see List of Items controlled):

- a. “Vaccines” containing, or designed for use against, items controlled by 1C351, 1C353 or 1C354;

¹ Ref. Annex I to Regulation (EU) 2021/821

- b. “Immunotoxins” containing items controlled by 1C351.d; or
- c. “Medical products” that contain any of the following:
 - 1. “Toxins” controlled by 1C351.d (except for botulinum toxins controlled by 1C351.d.1, conotoxins controlled by 1C351.d.3, or items controlled for CW reasons under 1C351.d.4 or .d.5); or
 - 2. Genetically modified organisms or genetic elements controlled by 1C353.a.3 (except for those that contain, or code for, botulinum toxins controlled by 1C351.d.1 or conotoxins controlled by 1C351.d.3);
- d. “Medical products” not controlled by X.C.IX.005.c that contain any of the following:
 - 1. Botulinum toxins controlled by 1C351.d.1;
 - 2. Conotoxins controlled by 1C351.d.3; or
 - 3. Genetically modified organisms or genetic elements controlled by 1C353.a.3 that contain, or code for, botulinum toxins controlled by 1C351.d.1 or conotoxins controlled by 1C351.d.3; or

- e. “Diagnostic and food testing kits” containing items controlled by 1C351.d (except for items controlled for CW reasons under 1C351.d.4 or .d.5).

Technical Notes:

1. *“Medical products” are: (1) pharmaceutical formulations designed for testing and human (or veterinary) administration in the treatment of medical conditions, (2) prepackaged for distribution as clinical or medical products, and (3) approved by the European Medicines Agency (EMA) either to be marketed as clinical or medical products or for use as research new drug.*
2. *“Diagnostic and food testing kits” are specifically developed, packaged and marketed for diagnostic or public health purposes. Biological toxins in any other configuration, including bulk shipments, or for any other end-uses are controlled by 1C351.*

- X.C.IX.006 Commercial charges and devices containing energetic materials, other than those specified in the CML or in Regulation (EU) 2021/821, and nitrogen trifluoride in a gaseous state (see List of Items Controlled):
- a. Shaped charges specially designed for oil well operations, utilizing one charge functioning along a single axis, that upon detonation produce a hole, and
 1. Contain any formulation of “controlled materials”;
 2. Have only a uniform shaped conical liner with an included angle of 90 degrees or less;
 3. Contain more than 0,010 kg but less than or equal to 0,090 kg of “controlled materials”; and
 4. Have a diameter not exceeding 114,3 cm;
 - b. Shaped charges specially designed for oil well operations containing less than or equal to 0,010 kg of “controlled materials”;

- c. Detonation cord or shock tubes containing less than or equal to 0,064 kg/m of “controlled materials”;
- d. Cartridge power devices, that contain less than or equal to 0,70 kg of “controlled materials” in the deflagration material;
- e. Detonators (electric or nonelectric) and assemblies thereof, that contain less than or equal to 0,01 kg of “controlled materials”;
- f. Igniters, that contain less than or equal to 0,01 kg of “controlled materials”;
- g. Oil well cartridges, that contain less than or equal to 0,015 kg of controlled “energetic materials”;
- h. Commercial cast or pressed boosters containing less than or equal to 1,0 kg of “controlled materials”;
- i. Commercial prefabricated slurries and emulsions containing less than or equal to 10,0 kg and less than or equal to 35 % by weight of ML8 “controlled materials”;

- j. Cutters and severing tools containing less than or equal to 3,5 kg of “controlled materials”;
- k. Pyrotechnic devices when designed exclusively for commercial purposes (e.g., theatrical stages, motion picture special effects, and fireworks displays) and containing less than or equal to 3,0 kg of “controlled materials”;
- l. Other commercial explosive devices and charges not controlled by X.C.IX.006.a through .k containing less than or equal to 1,0 kg of “controlled materials”; or

Note: X.C.IX.006.l includes automotive safety devices; extinguishing systems; cartridges for riveting guns; explosive charges for agricultural, oil and gas operations, sporting goods, commercial mining, or public works purposes; and delay tubes used in the assembly of commercial explosive devices.

- m. Nitrogen trifluoride (NF₃) in a gaseous state.

Notes:

1. *“Controlled materials” means controlled energetic materials (see 1C011, 1C111, 1C239 or ML8).*
2. *Nitrogen trifluoride when not in a gaseous state is controlled under ML8.d by the CML.*

X.C.IX.007 Mixtures not controlled by 1C350 or 1C450¹ that contain chemicals controlled by 1C350 or 1C450 and medical, analytical, diagnostic, and food testing kits not controlled by 1C350 or 1C450 that contain chemicals controlled by 1C350, as follows (see List of Items Controlled):

- a. Mixtures containing the following concentrations of precursor chemicals controlled by 1C350:
 1. Mixtures containing 10 % or less, by weight, of any single CWC Schedule 2 chemical controlled by 1C350;

¹ Ref. Annex I to Regulation (EU) 2021/821

2. Mixtures containing less than 30 %, by weight, of:
 - a. Any single CWC Schedule 3 chemical controlled by 1C350; or
 - b. Any single non-CWC precursor chemical controlled by 1C350;
- b. Mixtures containing the following concentrations of toxic or precursor chemicals controlled by 1C450:
 1. Mixtures containing the following concentrations of CWC Schedule 2 chemicals controlled by 1C450:
 - a. Mixtures containing 1 % or less, by weight, of any single CWC Schedule 2 chemical controlled by 1C450.a.1 and a.2 (i.e., mixtures containing Amiton or PFIB); or
 - b. Mixtures containing 10 % or less, by weight, of any single CWC Schedule 2 chemical controlled by 1C450.b.1, b.2, b.3, b.4, b.5, or b.6;

2. Mixtures containing less than 30 %, by weight, of any single CWC Schedule 3 chemical controlled by 1C450.a.4, a.5., a.6., a.7, or 1C450.b.8;
- c. “Medical, analytical, diagnostic, and food testing kits” that contain precursor chemicals controlled by 1C350 in an amount not exceeding 300 grams per chemical.

Technical Note:

For the purpose of this entry, “medical, analytical, diagnostic, and food testing kits” are pre-packaged materials of defined composition that are specifically developed, packaged and marketed for medical, analytical, diagnostic, or public health purposes. Replacement reagents for medical, analytical, diagnostic, and food testing kits described in X.C.IX.007.c are controlled by 1C350 if the reagents contain at least one of the precursor chemicals identified in that entry in concentrations equal to or greater than the control levels for mixtures indicated in 1C350.

X.C.IX.008 Non-fluorinated polymeric substances, not controlled by 1C008¹, as follows (see List of Items Controlled):

- a. Polyarylene ether ketones, as follows:
 1. Polyether ether ketone (PEEK);
 2. Polyether ketone ketone (PEKK);
 3. Polyether ketone (PEK); or
 4. Polyether ketone ether ketone ketone (PEKEKK);
- b. Not used.

X.C.IX.009 Specific materials, other than those specified in the CML or in Regulation (EU) 2021/821, as follows (see List of Items Controlled):

- a. Hardened steel and tungsten carbide precision ball bearings (3 mm or greater diameter);

¹ Ref. Annex I to Regulation (EU) 2021/821

- b. 304 and 316 stainless steel plate, other than those specified in the CML or in Regulation (EU) 2021/821;
- c. Monel plate;
- d. Tributyl phosphate (CAS 126-73-8);
- e. Nitric acid (CAS 7697-37-2) in concentrations of 20 % weight or greater;
- f. Fluorine (CAS 7782-41-4); or
- g. Alpha-emitting radionuclides, other than those specified in the CML or in Regulation (EU) 2021/821.

X.C.IX.010 Aromatic polyamides (aramids) not controlled by 1C010, 1C210 or X.C.IX.004, presented in any of the following forms (see List of Items Controlled):

- a. Primary forms;
- b. Filament yarn or monofilaments;

- c. Filament tows;
- d. Rovings;
- e. Staple or chopped fibres;
- f. Fabrics;
- g. Pulp or flocks.

X.C.IX.011 Nanomaterials as follows (see List of Items Controlled):

- a. Semiconductor nanomaterials;
- b. Composite-based nanomaterials; or
- c. Any of the following carbon-based nanomaterials:
 - 1. Carbon nanotubes;

2. Carbon nanofibres;
3. Fullerenes;
4. Graphenes; or
5. Carbon onions.

Notes: For the purpose of X.C.IX.011, nanomaterial means a material that meets at least one of the following criteria:

1. *Consists of particles, with one or more external dimensions in the size range 1 - 100 nm for more than 1 % of their number size distribution;*
2. *Has internal or surface structures in one or more dimensions in the size range 1 - 100 nm; or*
3. *Has a specific surface area by volume greater than 60 m²/cm³, excluding materials consisting of particles with a size lower than 1 nm.*

X.C.IX.012 Rare-earth metals and compounds, either in organic or inorganic form, including mixtures whether or not intermixed or interalloyed.

Note 1: Rare-earth metals and compounds include Scandium, Yttrium, Lanthanum, Cerium, Praseodymium, Neodymium, Promethium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium and Lutetium;

Note 2: For the purpose of the control X.C.IX.012 minerals containing rare-earth metals are excluded;

Note 3: X.C.IX.012 does not control mixtures in which no individually metal or compound specified in this entry constitutes more than 5 % by the weight of the mixture.

X.D.IX.001 Specific “software”, other than those specified in the CML or in Regulation (EU) 2021/821, as follows (see List of Items Controlled):

- a. “Software” specially designed for industrial process control hardware/systems controlled by X.B.IX.001, other than those specified in the CML or in Regulation (EU) 2021/821; or

- b. “Software” specially designed for equipment for the production of structural composites, fibres, prepregs and preforms controlled by X.B.IX.001, other than those specified in the CML or in Regulation (EU) 2021/821.

X.E.IX.001 “Technology” for the “development”, “production”, or “use” of fibrous and filamentary materials controlled by X.C.IX.004 and X.C.IX.010.

X.E.IX.002 “Technology” for the “development”, “production”, or “use” of nanomaterials controlled by X.C.IX.011.

Category X – Materials Processing

X.A.X.001 Explosives or detonator detection equipment, both bulk and trace based, consisting of an automated device, or combination of devices for automated decision making to detect the presence of different types of explosives, explosive residue, or detonators; and components, other than those specified in the CML or in Regulation (EU) 2021/821:

- a. Explosives detection equipment for “automated decision making” to detect and identify bulk explosives utilizing, but not limited to, X-ray (e.g., computed tomography, dual energy, or coherent scattering), nuclear (e.g., thermal neutron analysis, pulse fast neutron analysis, pulse fast neutron transmission spectroscopy, and gamma resonance absorption), or electromagnetic techniques (e.g., quadropole resonance and dielectrometry);

- b. Not used;
- c. Detonator detection equipment for automated decision making to detect and identify initiation devices (e.g. detonators, blasting caps) utilizing, but not limited to, X-ray (e.g. dual energy or computed tomography) or electromagnetic techniques.

Note: Explosives or detonation detection equipment in X.A.X.001 includes equipment for screening people, documents, baggage, other personal effects, cargo and/or mail.

Technical Notes:

1. *“Automated decision making” is the ability of the equipment to detect explosives or detonators at the design or operator- selected level of sensitivity and provide an automated alarm when explosives or detonators at or above the sensitivity level are detected.*
2. *This entry does not control equipment that depends on operator interpretation of indicators such as inorganic/organic color mapping of the items(s) being scanned.*
3. *Explosives and detonators include commercial charges and devices controlled by X.C.VIII.004 and X.C.IX.006 and energetic materials controlled by 1C011, 1C111 and 1C239¹.*

¹ Ref. Annex I to Regulation (EU) 2021/821

X.A.X.002 Concealed object detection equipment operating in the frequency range from 30 GHz to 3 000 GHz and having a spatial resolution of 0,1 mrad (milliradian) up to and including 1 mrad (milliradian) at a standoff distance of 100 m; and components, other than those specified in the CML or in Regulation (EU) 2021/821.

Note: Concealed object detection equipment includes but is not limited to equipment for screening people, documents, baggage, other personal effects, cargo and/or mail.

Technical Note:

The range of frequencies span what is generally considered as the millimetre-wave, submillimetre-wave and terahertz frequency regions.

X.A.X.003 Bearings and bearing systems not controlled by 2A001 (see List of Items Controlled):

- a. Ball bearings or Solid ball bearings, having tolerances specified by the manufacturer in accordance with ABEC 7, ABEC 7P, or ABEC 7T or ISO Standard Class 4 or better (or equivalents) and having any of the following characteristics;
 1. Manufactured for use at operating temperatures above 573 K (300 °C) either by using special materials or by special heat treatment; or

2. With lubricating elements or component modifications that, according to the manufacturer's specifications, are specially designed to enable the bearings to operate at speeds exceeding 2,3 million "DN";
- b. Solid tapered roller bearings, having tolerances specified by the manufacturer in accordance with ANSI/AFBMA Class 00 (inch) or Class A (metric) or better (or equivalents) and having either of the following characteristics:
 1. With lubricating elements or component modifications that, according to the manufacturer's specifications, are specially designed to enable the bearings to operate at speeds exceeding 2,3 million "DN"; or
 2. Manufactured for use at operating temperatures below 219 K (– 54 °C) or above 423 K (150 °C);
- c. Gas-lubricated foil bearing manufactured for use at operating temperatures of 561 K (288 °C) or higher and a unit load capacity exceeding 1 MPa;
- d. Active magnetic bearing systems;

- e. Fabric-lined self-aligning or fabric-lined journal sliding bearings manufactured for use at operating temperatures below 219 K (-54°C) or above 423 K (150°C).

Technical Notes:

1. “DN” is the product of the bearing bore diameter in mm and the bearing rotational velocity in rpm.
2. Operating temperatures include those temperatures obtained when a gas turbine engine has stopped after operation.

X.A.X.004 Piping, fittings and valves made of, or lined with stainless, copper-nickel alloy or other alloy steel containing 10 % or more nickel and/or chromium:

- a. Pressure tube, pipe, and fittings of 200 mm or more inside diameter, and suitable for operation at pressures of 3,4 MPa or greater;
- b. Pipe valves having all of the following characteristics that are not controlled by 2B350.g¹:
 1. A pipe size connection of 200 mm or more inside diameter; and
 2. Rated at 10,3 MPa or more.

¹ Ref. Annex I to Regulation (EU) 2021/821

Notes:

1. See X.D.X.005 for “software” for items controlled under this entry.
2. See 2E001 (“development”), 2E002 (“production”), and X.E.X.003 (“use”) for technology for items controlled under this entry.
3. See related controls 2A226, 2B350 and X.B.X.010.

X.A.X.005 Pumps designed to move molten metals by electromagnetic forces.

Notes:

1. See X.D.X.005 for “software” for items controlled under this entry.
2. See 2E001 (“development”), 2E002 (“production”), and X.E.X.003 (“use”) for “technology” for items controlled under this entry.
3. Pumps for use in liquid-metal-cooled reactors are controlled by 0A001.

X.A.X.006 “Portable electric generators” and specially designed components.

Technical Note:

“Portable electric generators” – The generators that are in X.A.X.006 are portable – 2 268 kg or less on wheels or transportable in a 2,5 tonnes truck without a special set up requirement.

X.A.X.007 Specific processing equipment, other than those specified in the CML or in Regulation (EU) 2021/821, as follows (see List of Items Controlled):

- a. Bellows sealed valves;
- b. Not used.

X.B.X.001 “Continuous flow reactors” and their “modular components”.

Technical Notes:

1. *For the purposes of X.B.X.001, “continuous flow reactors” consist in plug and play systems where reactants are continuously fed into the reactor and the resultant product is collected at the outlet.*
2. *For purposes of X.B.X.001, “modular components” are fluidic modules, liquid pumps, valves, packed-bed modules, mixer modules, pressure gauges, liquid-liquid separators, etc.*

X.B.X.002 Nucleic acid assemblers and synthesizers not controlled by 2B352.i, which are partly or entirely automated, and designed to generate nucleic acids greater than 50 bases.

- X.B.X.003 Automated peptide synthesizers capable to work under controlled atmosphere conditions.
- X.B.X.004 Numerical control units for machine tools and “numerically controlled” machine tools, other than those specified in the CML or in Regulation (EU) 2021/821 (see List of Items Controlled):
- a. “Numerical control” units for machine tools:
1. Having four interpolating axes that can be coordinated simultaneously for contouring control; or
 2. Having two or more axes that can be coordinated simultaneously for contouring control and a minimum programmable increment better (less) than 0,001 mm;
 3. “Numerical control” units for machine tools having two, three or four interpolating axes that can be coordinated simultaneously for contouring control, and capable of receiving directly (on-line) and processing computer-aided-design (CAD) data for internal preparation of machine instructions; or

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- b. Motion control boards specially designed for machine tools and having any of the following characteristics:
1. Interpolation in more than four axes;
 2. Capable of real-time processing of data to modify tool path, feed rate and spindle data, during the machining operation, by any of the following:
 - a. Automatic calculation and modification of part program data for machining in two or more axes by means of measuring cycles and access to source data; or
 - b. Adaptive control with more than one physical variable measured and processed by means of a computing model (strategy) to change one or more machining instructions to optimize the process; or
 3. Capable of receiving and processing CAD data for internal preparation of machine instructions;

- c. “Numerically controlled” machine tools that, according to the manufacturer’s technical specifications, can be equipped with electronic devices for simultaneous contouring control in two or more axes and that have both of the following characteristics:
1. Two or more axes that can be coordinated simultaneously for contouring control; and
 2. Positioning accuracies according to ISO 230/2 (2006), with all compensations available:
 - a. Better than 15 µm along any linear axis (overall positioning) for grinding machines;
 - b. Better than 15 µm along any linear axis (overall positioning) for milling machines; or
 - c. Better than 15 µm along any linear axis (overall positioning) for turning machines; or

- d. Machine tools, as follows, for removing or cutting metals, ceramics or composites, that, according to the manufacturer's technical specifications, can be equipped with electronic devices for simultaneous contouring control in two or more axes:
1. Machine tools for turning, grinding, milling or any combination thereof, having two or more axes that can be coordinated simultaneously for contouring control and having any of the following characteristics:
 - a. One or more contouring "tilting spindles";
Note: X.B.X.004.d.1.a. applies to machine tools for grinding or milling only.
 - b. "Cammings" (axial displacement) in one revolution of the spindle less (better) than 0,0006 mm total indicator reading (TIR);
Note: X.B.X.004.d.1.b. applies to machine tools for turning only.

- c. “Run-out” (out-of-true running) in one revolution of the spindle less (better) than 0,0006 mm total indicator reading (TIR); or
 - d. The positioning accuracies, with all compensations available, are less (better) than: 0,001° on any rotary axis;
 2. Electrical discharge machines (EDM) of the wire feed type that have five or more axes that can be coordinated simultaneously for contouring control.
- X.B.X.005 Non-“numerically controlled” machine tools for generating optical quality surfaces, (see List of Items Controlled) and specially designed components therefor:
 - a. Turning machines using a single point cutting tool and having all of the following characteristics:
 1. Slide positioning accuracy less (better) than 0,0005 mm per 300 mm of travel;

2. Bidirectional slide positioning repeatability less (better) than 0,00025 mm per 300 mm of travel;
3. Spindle “run-out” and “camming” less (better) than 0,0004 mm total indicator reading (TIR);
4. Angular deviation of the slide movement (yaw, pitch and roll) less (better) than 2 seconds of arc, TIR, over full travel; and
5. Slide perpendicularity less (better) than 0,001 mm per 300 mm of travel;

Technical Note:

The bidirectional slide positioning repeatability (R) of an axis is the maximum value of the repeatability of positioning at any position along or around the axis determined using the procedure and under the conditions specified in part 2.11 of ISO 230/2: 1988.

- b. Fly cutting machines having all of the following characteristics:
 - 1. Spindle “run-out” and “camming” less (better) than 0,0004 mm TIR; and
 - 2. Angular deviation of slide movement (yaw, pitch and roll) less (better) than 2 seconds of arc, TIR, over full travel.

X.B.X.006 Gearmaking and/or finishing machinery not controlled by 2B003 capable of producing gears to a quality level of better than AGMA 11.

X.B.X.007 Dimensional inspection or measuring systems or equipment not controlled by 2B006 or 2B206, as follows (see List of Items Controlled):

- a. Manual dimensional inspection machines, having both of the following characteristics:
 - 1. Two or more axes; and
 - 2. A measurement uncertainty equal to or less (better) than $(3 + L/300) \mu\text{m}$ in any axes (L measured length in mm).

- X.B.X.008 “Robots” not controlled by 2B007 or 2B207 that are capable of employing feedback information in real-time processing from one or more sensors to generate or modify programs or to generate or modify numerical program data.
- X.B.X.009 Assemblies, circuit boards or inserts specially designed for machine tools controlled by X.B.X.004, or for equipment controlled by X.B.X.006, X.B.X.007 or X.B.X.008:
- a. Spindle assemblies, consisting of spindles and bearings as a minimal assembly, with radial (“run-out”) or axial (“camming”) axis motion in one revolution of the spindle less (better) than 0,0006 mm total indicator reading (TIR);
 - b. Single point diamond cutting tool inserts, having all of the following characteristics:
 1. Flawless and chip-free cutting edge when magnified 400 times in any direction;
 2. Cutting radius from 0,1 to 5 mm inclusive; and
 3. Cutting radius out-of-roundness less (better) than 0,002 mm TIR.

- c. Specially designed printed circuit boards with mounted components capable of upgrading, according to the manufacturer's specifications, "numerical control" units, machine tools or feed-back devices to or above the levels specified in X.B.X.004, X.B.X.006, X.B.X.007, X.B.X.008, or X.B.X.009.

Technical Note:

This entry does not control measuring interferometer systems, without closed or open loop feedback, containing a laser to measure slide movement errors of machine-tools, dimensional inspection machines or similar equipment.

- X.B.X.010 Specific processing equipment, other than those specified in the CML or in Regulation (EU) 2021/821, as follows (see List of Items Controlled):
- a. Isostatic presses, other than those specified in the CML or in Regulation (EU) 2021/821;
 - b. Bellows manufacturing equipment, including hydraulic forming equipment and bellows forming dies;
 - c. Laser welding machines;

- d. MIG welders;
- e. E-beam welders;
- f. Monel equipment, including valves, piping, tanks and vessels;
- g. 304 and 316 stainless steel valves, piping, tanks and vessels;

Note: Fittings are considered part of piping for purposes of X.B.X.010.g.

- h. Mining and drilling equipment, as follows:
 - 1. Large boring equipment capable of drilling holes greater than 61 cm in diameter;
 - 2. Large earth-moving equipment used in the mining industry;
- i. Electroplating equipment designed for coating parts with nickel or aluminium;
- j. Pumps designed for industrial service and for use with an electrical motor of 5 HP or greater;

- k. Vacuum valves, piping, flanges, gaskets and related equipment specially designed for use in high-vacuum service, other than those specified in the CML or in Regulation (EU) 2021/821;
 - l. Spin forming and flow forming machines, other than those specified in the CML or in Regulation (EU) 2021/821;
 - m. Centrifugal multiplane balancing machines, other than those specified in the CML or in Regulation (EU) 2021/821; or
 - n. Austenitic stainless steel plate, valves, piping, tanks and vessels.
- X.B.X.011 Floor-mounted fume hoods (walk-in style) with a minimum nominal width of 2,5 metres.
- X.B.X.012 Class II biosafety cabinets and glove boxes.
- X.B.X.013 Batch centrifuges with a rotor capacity of 4 litres or greater, usable with biological materials.
- X.B.X.014 Fermenters with an internal volume of 10–20 litres, usable with biological materials.

X.B.X.015 Reaction vessels, reactors, agitators, heat exchangers, condensers, pumps (including single seal pumps), valves, storage tanks, containers, receivers, and distillation or absorption columns that meet performance parameters of the control 2B350¹, regardless of their materials of construction.

Note: For the purpose of the control X.B.X.015, plumbing valves and storage tanks with total internal (geometric) volume less than 1 m³ (1000 litres) designed for domestic water or gas systems are excluded.

X.B.X.016 Conventional or turbulent air-flow clean-air rooms and self-contained fan-HEPA filter units that may be used for P3 or P4 (BSL 3, BSL 4, L3, L4) containment facilities.

X.B.X.017 Vacuum pumps with a manufacturer's specified maximum flow-rate greater than 1 m³/h (under standard temperature and pressure conditions), casings (pump bodies), preformed casing-liners, impellers, rotors, and jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemicals being processed are made from controlled materials.

X.B.X.018 Laboratory equipment, including parts and accessories for such equipment, for the analysis or detection, destructive or non-destructive, of chemical substances.

X.B.X.019 Whole chlor-alkali electrolysis cells – mercury, diaphragm, and membrane.

¹ Ref. Annex I to Regulation (EU) 2021/821

- X.B.X.020 Titanium electrodes (including those with coatings produced from other metal oxides), specially designed for use in chlor-alkali cells.
- X.B.X.021 Nickel electrodes (including those with coatings produced from other metal oxides), specially designed for use in chlor-alkali cells.
- X.B.X.022 Bipolar titanium nickel electrodes (including those with coatings produced from other metal oxides), specially designed for use in chlor-alkali cells.
- X.B.X.023 Asbestos diaphragms specially designed for use in chlor-alkali cells.
- X.B.X.024 Fluoropolymer based diaphragms specially designed for use in chlor-alkali cells.
- X.B.X.025 Fluoropolymer based ion exchange membranes specially designed for use in chlor-alkali cells.
- X.B.X.026 Compressors specially designed to compress wet or dry chlorine, regardless of material of construction.

- X.B.X.027 Microwave reactors – Machinery, plant or laboratory equipment, whether or not electrically heated, for the treatment of materials by a process involving a change of temperature such as heating.
- X.D.X.001 “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by X.A.X.001.
- X.D.X.002 “Software” “required” for the “development”, “production” or “use” of concealed object detection equipment controlled by X.A.X.002.
- X.D.X.003 “Software” specially designed for the “development”, “production”, or “use” of equipment controlled by X.B.X.004, X.B.X.006, or X.B.X.007, X.B.X.008, and X.B.X.009.
- X.D.X.004 Specific “software”, as follows (see List of Items Controlled):
- a. “Software” to provide adaptive control and having both of the following characteristics:
 1. For flexible manufacturing units (FMUs); and

2. Capable of generating or modifying, in real-time processing, programs or data by using the signals obtained simultaneously by means of at least two detection techniques, such as:
 - a. Machine vision (optical ranging);
 - b. Infrared imaging;
 - c. Acoustical imaging (acoustical ranging);
 - d. Tactile measurement;
 - e. Inertial positioning;
 - f. Force measurement; and
 - g. Torque measurement.

Note: X.D.X.004.a does not control “software” which only provides rescheduling of functionally identical equipment within “flexible manufacturing units” using pre-stored part programs and a pre-stored strategy for the distribution of the part programs.

- b. Not used.

X.D.X.005 “Software” specially designed or modified for the “development,” “production,” or “use” of items controlled by X.A.X.004 or X.A.X.005.

Note: See 2E001 (“development”) for “technology” for “software” controlled under this entry.

X.D.X.006 “Software” specially designed for the “development” or “production” of portable electric generators controlled by X.A.X.006.

X.E.X.001 “Technology” “required” for the “development,” “production” or “use” of equipment controlled by X.A.X.002 or “required” for the “development” of “software” controlled by X.D.X.002.

Note: See X.A.X.002 and X.D.X.002 for related commodity and “software” controls.

X.E.X.002 “Technology” for the “use” of equipment controlled by X.B.X.004, X.B.X.006, X.B.X.007, or X.B.X.008.

X.E.X.003 “Technology” according to the General Technology Note for the “use” of equipment controlled by X.A.X.004 or X.A.X.005.

X.E.X.004 “Technology” for the “use” of portable electric generators controlled by X.A.X.006.

Part B

1. Semiconductor devices

CN Code	Description
8541 10	Diodes, other than photosensitive or light-emitting diodes (LED)
8541 21	Transistors, other than photosensitive transistors with a dissipation rate of less than 1 W
8541 29	Other transistors, other than photosensitive transistors
8541 49	Photosensitive semiconductor devices (excl. Photovoltaic generators and cells)
8541 51	Other semiconductor devices: Semiconductor-based transducers
8541 59	Other semiconductor devices
8541 60	Mounted piezo-electric crystals
8541 90	Semiconductor devices: Parts

2. Electronic integrated circuits

CN Code	Description
8537 10	Boards, panels, consoles, desks, cabinets and other bases, equipped with two or more apparatus of heading 8535 or 8536, for electric control or the distribution of electricity, including those incorporating instruments or apparatus of Chapter 90, and numerical control apparatus, other than switching apparatus of heading 8517, for a voltage not exceeding 1 000 V
8542 31	Processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits
8542 32	Memories
8542 33	Amplifiers
8542 39	Other Electronic Integrated Circuits
8542 90	Electronic integrated circuits: Parts

3. Photographic cameras

CN Code	Description
8525 89	Other television cameras, digital cameras and video camera recorders
9006 30	Cameras specially designed for underwater use, for aerial survey or for medical or surgical examination of internal organs; comparison cameras for forensic or criminological purposes
9013 80	Other optical devices, appliances and instruments
9025 19	Other thermometers and pyrometers, not combined with other instruments

4. Other electrical/magnetic components

CN Code	Description
8505 11	Permanent magnets and articles intended to become permanent magnets after magnetisation; of metal
8529 10	Aerials and aerial reflectors of all kinds; parts suitable for use therewith
8532 21	Other fixed capacitors of tantalum
8532 24	Ceramic dielectric multilayer capacitors
8536 50	Other switches
8536 69	Plugs and sockets
8536 90	Other apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits (for example, switches, relays, fuses, surge suppressors, plugs, sockets, lamp holders and other connectors, junction boxes), for a voltage not exceeding 1 000 V; connectors for optical fibres, optical fibre bundles or cables
8548 00	Electrical parts of machinery or apparatus, not specified or included elsewhere in Chapter 85

5. Machines for additive manufacturing

CN Code	Description
8485 20	Machines for additive manufacturing by plastics or rubber deposit
8485 30	Machines for additive manufacturing by plaster, cement, ceramics or glass deposit
8485 90	Parts of machines for additive manufacturing

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ANNEX III

Annex VIII to Regulation (EU) No 833/2014 is replaced by the following:

‘ANNEX VIII

List of partner countries referred to in Articles 2(4), 2a(4), 2d(4), 3h(3), 3k(4) and 5n(7)

THE UNITED STATES OF AMERICA

JAPAN

UNITED KINGDOM

SOUTH KOREA

AUSTRALIA

CANADA

NEW ZEALAND

NORWAY’.

ANNEX IV

In Annex XI to Regulation (EU) No 833/2014, Part D is added:

‘List of goods and technologies referred to in Article 3c(1)

Part D

CN Code	Description
841111	turbojets of a thrust \leq 25 kn
841112	turbojets of a thrust $>$ 25 kn
841121	turbopropellers of a power \leq 1 100 kw
841122	turbopropellers of a power $>$ 1 100 kw
841191	parts of turbojets or turbopropellers, n.e.s.

’.

ANNEX V

In Annex XV to Regulation (EU) No 833/2014, the following entities are added:

‘RT Arabic

Sputnik Arabic’.

ANNEX VI

In Annex XXI to Regulation (EU) No 833/2014, Part C is added:

‘List of goods and technology as referred to in Article 3i

Part C

CN Code	Description
2712	petroleum jelly, paraffin wax, micro- crystalline petroleum wax, slack wax, ozokerite, lignite wax, peat wax, other mineral waxes, and similar products obtained by synthesis or by other processes, whether or not coloured
2713	petroleum coke, petroleum bitumen and other residues of petroleum oil or of oil obtained from bituminous minerals
2714	bitumen and asphalt, natural; bituminous or oil-shale and tar sands; asphaltites and asphaltic rocks
2715	bituminous mastics, cut-backs and other bituminous mixtures based on natural asphalt, on natural bitumen, on petroleum bitumen, on mineral tar or on mineral tar pitch
2803	carbon (carbon blacks and other forms of carbon not elsewhere specified or included)
4002	synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of natural rubber, balata, gutta-percha, guayule, chicle or similar types of natural rubber with synthetic rubber or factice, in primary forms or in plates, sheets or strip

’.

ANNEX VII

In Annex XXIII to Regulation (EU) No 833/2014, Part A is replaced and Part C is added:

‘ANNEX XXIII

List of goods and technology as referred to in Article 3k

Part A

CN code	Description
060110	Bulbs, tubers, tuberous roots, corms, crowns and rhizomes, dormant
060120	Bulbs, tubers, tuberous roots, corms, crowns and rhizomes, in growth or in flower; chicory plants and roots
060230	Rhododendrons and azaleas, grafted or not
060240	Roses, grafted or not
060290	Other live plants (including their roots), cuttings and slips; mushroom spawn - Other
060420	Foliage, branches and other parts of plants, without flowers or flower buds, and grasses, mosses and lichens, being goods of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared - Fresh
250840	Other clays
250870	Chamotte or dinas earths
250900	Chalk
251200	Siliceous fossil meals (for example, kieselguhr, tripolite and diatomite) and similar siliceous earths, whether or not calcined, of an apparent specific gravity of 1 or less
251512	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape
251520	Ecaussine and other calcareous monumental or building stone; alabaster
251820	Calcined or sintered dolomite

CN code	Description
251910	Natural magnesium carbonate (magnesite)
252010	Gypsum; anhydrite
252100	Limestone flux; limestone and other calcareous stone, of a kind used for the manufacture of lime or cement
252210	Quicklime
252230	Hydraulic lime
252520	Mica powder
252620	Natural steatite, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape; talc - Crushed or powdered
253020	Kieserite, epsomite (natural magnesium sulphates)
270100	Coal; briquettes, ovoids and similar solid fuels manufactured from coal
270200	Lignite, whether or not agglomerated, excluding jet
270300	Peat (including peat litter), whether or not agglomerated
270400	Coke and semi-coke of coal, of lignite or of peat, whether or not agglomerated; retort carbon
270730	Xylol (xylenes)
270820	Pitch coke
271210	Petroleum jelly
271290	Petroleum jelly; paraffin wax, microcrystalline petroleum wax, slack wax, ozokerite, lignite wax, peat wax, other mineral waxes, and similar products obtained by synthesis or by other processes, whether or not coloured:
271500	Bituminous mastics, cut-backs and other bituminous mixtures based on natural asphalt, on natural bitumen, on petroleum bitumen, on mineral tar or on mineral tar pitch - Other
280410	Hydrogen
280430	Nitrogen
280440	Oxygen

CN code	Description
280461	Silicon - Containing by weight not less than 99,99 % of silicon
280480	Arsenic
280610	Hydrogen chloride (hydrochloric acid)
280620	Chlorosulphuric acid
281129	Other inorganic oxygen compounds of non-metals - Other
281310	Carbon disulphide
281420	Ammonia in aqueous solution
281512	Sodium hydroxide (caustic soda) - In aqueous solution (soda lye or liquid soda)
281830	aluminium hydroxide
281990	Chromium oxides and hydroxides - Other
282010	Manganese dioxide
282731	Other chlorides - Of magnesium
282735	Other chlorides - Of nikel
282890	Hypochlorites; commercial calcium hypochlorite; chlorites; hypobromites - Other
282911	Chlorates - Of sodium
283220	Sulphites (excluding sodium)
283324	Sulphates of nickel
283330	Alums
283410	Nitrites
283630	Sodium hydrogencarbonate (sodium bicarbonate)
283650	Calcium carbonate
283990	Silicates; commercial alkali metal silicates - Other
284030	Peroxoborates (perborates)
284150	Other chromates and dichromates; peroxochromates
284180	Tungstates (wolframates)
284310	Colloidal precious metals

CN code	Description
284321	Silver nitrate
284329	Silver compounds - Other
284330	Gold compounds
284700	Hydrogen peroxide, whether or not solidified with urea
290123	Butene (butylene) and isomers thereof
290124	Buta-1,3-diene and isoprene
290129	Acyclic hydrocarbons - Unsaturated - Other
290211	Cyclohexane
290230	Toluene
290241	o-xylene
290243	p-xylene
290244	Mixed xylene isomers
290250	Styrene
290311	Chloromethane (methyl chloride) and chloroethane (ethyl chloride)
290312	Dichloromethane (methylene chloride)
290321	Vinyl chloride (chloroethylene)
290323	Tetrachloroethylene (perchloroethylene)
290329	Unsaturated chlorinated derivatives of acyclic hydrocarbons - Other
290376	Bromochlorodifluoromethane (Halon-1211), bromotrifluoromethane (Halon-1301) and dibromotetrafluoroethanes (Halon-2402)
290381	1,2,3,4,5,6-Hexachlorocyclohexane (HCH (ISO)), including lindane (ISO, INN)
290391	Chlorobenzene, o-dichlorobenzene and p-dichlorobenzene
290410	Derivatives containing only sulpho groups, their salts and ethyl esters
290420	Derivatives containing only nitro or only nitroso groups
290431	Perfluorooctane sulphonic acid

CN code	Description
290513	Butan-1-ol (n-butyl alcohol)
290516	Octanol (octyl alcohol) and isomers thereof
290519	Saturated monohydric alcohols - Other
290541	2-Ethyl-2-(hydroxymethyl)propane-1,3-diol (trimethylolpropane)
290559	Other polyhydric alcohols - Other
290613	Sterols and inositols
290619	Cyclanic, cyclenic or cycloterpenic -Other
290711	Phenol (hydroxybenzene) and its salts
290713	Octylphenol, nonylphenol and their isomers; salts thereof
290719	Monophenols - Other
290722	Hydroquinone (quinol) and its salts
290911	Pentachlorophenol (ISO)
290920	Cyclanic, cyclenic or cycloterpenic ethers and their halogenated, sulphonated, nitrated or nitrosated derivatives
290941	2,2'-Oxydiethanol (diethylene glycol, digol)
290943	Monobutyl ethers of ethylene glycol or of diethylene glycol
290949	Ether-alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives - Other
291010	Oxirane (ethylene oxide)
291020	Methyloxirane (propylene oxide)
291100	Acetals and hemiacetals, whether or not with other oxygen function, and their halogenated, sulphonated, nitrated or nitrosated derivat
291212	Ethanal (acetaldehyde)
291249	Aldehyde-alcohols, aldehyde-ethers, aldehyde-phenols and aldehydes with other oxygen function - Other
291260	Paraformaldehyde
291411	Acetone

CN code	Description
291461	Anthraquinone
291513	Esters of formic acid
291590	Saturated acyclic monocarboxylic acids and their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives - Other
291612	Esters of acrylic acid
291613	Methacrylic acid and its salts
291614	Esters of methacrylic acid
291615	Oleic, linoleic or linolenic acids, their salts and esters
291733	Dinonyl or didecyl orthophthalates
292011	Parathion (ISO) and parathion-methyl (ISO) (methyl-parathion)
292122	Hexamethylenediamine and its salts
292141	Aniline and its salts
292211	Monoethanolamine and its salts
292243	Anthranilic acid and its salts
292320	Lecithins and other phosphoaminolipids
293040	Methionine
293354	Other derivatives of malonylurea (barbituric acid); salts thereof
293371	6-Hexanelactam (epsilon-caprolactam)
320190	Tanning extracts of vegetable origin; tannins and their salts, ethers, esters and other derivatives
320210	Synthetic organic tanning substances
320290	Synthetic organic tanning substances; inorganic tanning substances; tanning preparations, whether or not containing natural tanning substances; enzymatic preparations for pre-tanning

CN code	Description
320300	colouring matter of vegetable or animal origin, incl. dye extracts (excl. animal black), whether or not chemically defined; preparations based on colouring matter of vegetable or animal origin of a kind used to dye fabrics or produce colorant preparations (excl. preparations of heading 3207, 3208, 3209, 3210, 3213 and 3215) - Other
320490	Synthetic organic colouring matter, whether or not chemically defined; preparations as specified in note 3 to this chapter based on synthetic organic colouring matter; synthetic organic products of a kind used as fluorescent brightening agents or as luminophores, whether or not chemically defined
320500	colour lakes (other than chinese or japanese lacquer and paints); preparations based on colour lakes of a kind used to dye fabrics or produce colorant preparations (excl. preparations of heading 3207, 3208, 3209, 3210, 3213 and 3215)
320641	ultramarine and preparations based thereon of a kind used for colouring any material or produce colorant preparations (excl. preparations of heading 3207, 3208, 3209, 3210, 3213 and 3215)
320649	inorganic or mineral colouring matter, n.e.s.; preparations based on inorganic or mineral colouring matter of a kind used for colouring any material or produce colorant preparations, n.e.s. (excl. preparations of heading 3207, 3208, 3209, 3210, 3213 and 3215 and inorganic products of a kind used as liminophores) - Other
320710	Prepared pigments, prepared opacifiers, prepared colours and similar preparations
320720	Engobes (slips)
320730	Liquid lustres and similar preparations
320740	Glass frit and other glass, in the form of powder, granules or flakes
320810	Paints and varnishes (including enamels and lacquers) based on synthetic polymers or chemically modified natural polymers, dispersed or dissolved in a non-aqueous medium; solutions as defined in note 4 to Chapter 32 - Based on polyesters
320820	Paints and varnishes (including enamels and lacquers) based on synthetic polymers or chemically modified natural polymers, dispersed or dissolved in a non-aqueous medium; solutions as defined in note 4 to Chapter 32 - Based on acrylic or vinyl polymers

CN code	Description
320890	Paints and varnishes (including enamels and lacquers) based on synthetic polymers or chemically modified natural polymers, dispersed or dissolved in a non-aqueous medium; solutions as defined in note 4 to Chapter 32 -
320910	paints and varnishes, incl. enamels and lacquers, based on acrylic or vinyl polymers, dispersed or dissolved in an aqueous medium
320990	paints and varnishes, incl. enamels and lacquers, based on synthetic or chemically modified natural polymers, dispersed or dissolved in an aqueous medium (excl. those based on acrylic or vinyl polymers) - Other
321000	Other paints and varnishes (including enamels, lacquers and distempers); prepared water pigments of a kind used for finishing leather
321290	Pigments (including metallic powders and flakes) dispersed in non- aqueous media, in liquid or paste form, of a kind used in the manufacture of paints (including enamels); stamping foils; dyes and other colouring matter put up in forms or packings for retail sale - Other
321410	Glaziers' putty, grafting putty, resin cements, caulking compounds and other mastics; painters' fillings
321490	Glaziers' putty, grafting putty, resin cements, caulking compounds and other mastics; painters' fillings; non-refractory surfacing preparations for façades, indoor walls, floors, ceilings or the like - Other
321511	Printing ink - Black
321519	Printing ink - Other
340311	Lubricating preparations (including cutting-oil preparations, bolt or nut release preparations, anti-rust or anti-corrosion preparations and mould-release preparations, based on lubricants) and preparations of a kind used for the oil or grease treatment of textile materials, leather, furskins or other materials, but excluding preparations containing, as basic constituents, 70 % or more by weight of petroleum oils or of oils obtained from bituminous minerals – Containing petroleum oils or oils obtained from bituminous minerals - Preparations for the treatment of textile materials, leather, furskins or other materials

CN code	Description
340319	Lubricating preparations (including cutting-oil preparations, bolt or nut release preparations, anti-rust or anti-corrosion preparations and mould-release preparations, based on lubricants) and preparations of a kind used for the oil or grease treatment of textile materials, leather, furskins or other materials, but excluding preparations containing, as basic constituents, 70 % or more by weight of petroleum oils or of oils obtained from bituminous minerals – Containing petroleum oils or oils obtained from bituminous minerals - Other
340391	Preparations for the treatment of textile materials, leather, furskins or other materials
340399	Lubricating preparations (including cutting-oil preparations, bolt or nut release preparations, anti-rust or anti-corrosion preparations and mould-release preparations, based on lubricants) and preparations of a kind used for the oil or grease treatment of textile materials, leather, furskins or other materials, but excluding preparations containing, as basic constituents, 70 % or more by weight of petroleum oils or of oils obtained from bituminous minerals - Other
350510	Dextrins and other modified starches
350699	Prepared glues and other prepared adhesives, not elsewhere specified or included; products suitable for use as glues or adhesives, put up for retail sale as glues or adhesives, not exceeding a net weight of 1 kg- Other
370120	Instant print film
370191	For colour photography (polychrome)
370232	Other film, with silver halide emulsion
370239	Photographic film in rolls, sensitised, unexposed, of any material other than paper, paperboard or textiles; instant print film in rolls, sensitised, unexposed - Other
370243	Other film, without perforations, of a width exceeding 105 mm - Of a width exceeding 610 mm and of a length not exceeding 200 m
370244	Other film, without perforations, of a width exceeding 105 mm - Of a width exceeding 105 mm but not exceeding 610 mm
370255	Other film, for colour photography (polychrome) - Of a width exceeding 16 mm but not exceeding 35 mm and of a length exceeding 30 m

CN code	Description
370256	Other film, for colour photography (polychrome) - Of a width exceeding 35 mm
370297	Other film, for colour photography (polychrome) - Of a width not exceeding 35 mm and of a length exceeding 30 mm.
370298	photographic film, sensitised, in rolls, unexposed, with perforations, for monochrome photography, width > 35 mm (excl. of paper, paperboard and textiles; x-ray film)
370320	photographic paper, paperboard and textiles, sensitised, unexposed, for colour photography "polychrome" (excl. products in rolls > 610 mm wide)
370390	photographic paper, paperboard and textiles, sensitised, unexposed, for monochrome photography (excl. products in rolls > 610 mm wide)
370500	photographic plates and film, exposed and developed (excl. products made of paper, paperboard or textiles, cinematographic film and ready-to-use printing plates)
370610	cinematographic film, exposed and developed, whether or not incorporating soundtrack or consisting only of soundtrack, width \geq 35 mm
380120	colloidal or semi-colloidal graphite
380620	salts of rosin, of resin acids or of derivatives of rosin or resin acids (excl. salts of rosin adducts)
380700	wood tar; wood tar oils; wood creosote; wood naphtha; vegetable pitch; brewer's pitch and similar preparations based on rosin, resin acids or vegetable pitch (excl. burgundy pitch, yellow pitch, stearin pitch, fatty acid pitch, fatty tar and glycerin pitch)
380910	finishing agents, dye carriers to accelerate the dyeing or fixing of dyestuffs and other products and preparations such as dressings and mordants of a kind used in the textile, paper, leather or like industries, n.e.s., based on starch or derivatives thereof
380991	finishing agents, dye carriers to accelerate the dyeing or fixing of dyestuffs, and other products and preparations, e.g. dressings and mordants of a kind used in the textile or similar industries, n.e.s. (excl. those with a basis of amylaceous substances)

CN code	Description
380992	finishing agents, dye carriers to accelerate the dyeing or fixing of dyestuffs, and other products and preparations, e.g. dressings and mordants of a kind used in the paper or similar industries, n.e.s. (excl. those with a basis of amylaceous substances)
380993	finishing agents, dye carriers to accelerate the dyeing or fixing of dyestuffs, and other products and preparations, e.g. dressings and mordants of a kind used in the leather or similar industries, n.e.s. (excl. those with a basis of amylaceous substances)
381010	pickling preparations for metal surfaces; soldering, brazing or welding pastes and powders consisting of metal and other materials
381121	prepared additives for oil lubricants containing petroleum oil or bituminous mineral oil
381129	prepared additives for oil lubricants not containing petroleum oil or bituminous mineral oil
381190	oxidation inhibitors, gum inhibitors, viscosity improvers, anti-corrosive preparations and other prepared additives for mineral oils, incl. gasoline, or for other liquids used for the same purposes as mineral oils (excl. anti-knock preparations and oil lubricant additives)
381220	compound plasticisers for rubber or plastics, n.e.s.
381300	preparations and charges for fire-extinguishers; charged fire-extinguishing grenades (excl. full or empty fire-extinguishing devices, whether or not portable, unmixed chemically undefined products with fire-extinguishing properties in other forms)
381400	organic composite solvents and thinners, n.e.s.; prepared paint or varnish removers (excl. nail varnish remover)
381511	supported catalysts with nickel or a nickel compound as the active substance, n.e.s.
381512	supported catalysts with precious metal or a precious-metal compound as the active substance, n.e.s.
381519	supported catalysts, n.e.s. (excl. with precious metal, a precious-metal compound, nickel or a nickel compound as the active substance)

CN code	Description
381590	reaction initiators, reaction accelerators and catalytic preparations, n.e.s. (excl. rubber accelerators and supported catalysts)
38160010	Dolomite ramming mix
381700	mixed alkylbenzenes and mixed alkylnaphthalenes produced by the alkylation of benzene and naphthalene (excl. mixed isomers of cyclic hydrocarbons)
381900	hydraulic brake fluids and other prepared liquids for hydraulic transmission not containing petroleum oil or bituminous mineral oil, or containing < 70 % petroleum oil or bituminous mineral oil by weight
382000	anti-freezing preparations and prepared de-icing fluids (excl. prepared additives for mineral oils or other liquids used for the same purposes as mineral oils)
382313	tall oil fatty acids, industrial
382790	Mixtures containing halogenated derivatives of methane, ethane or propane (excl. those of subheadings 3824.71.00 to 3824.78.00)
382481	mixtures and preparations containing oxirane "ethylene oxide"
382484	mixtures and preparations containing aldrin (iso), camphechlor (iso) toxaphene", chlordane (iso), chlordecone (iso), ddt (iso) "clofenotane (inn), 1,1,1-trichloro-2,2-bis"p-chlorophenyl"ethane", dieldrin "iso, inn", endosulfan (iso), endrin (iso), heptachlor (iso) or mirex (iso)
382499	chemical products and preparations of the chemical or allied industries, incl. those consisting of mixtures of natural products, n.e.s.
382590	residual products of the chemical or allied industries, n.e.s. (excl. waste)
382600	biodiesel and mixtures thereof, not containing or containing < 70 % by weight of petroleum oils or oils obtained from bituminous minerals
390140	ethylene-alpha-olefin copolymers, having a specific gravity of < 0,94 , in primary forms
390220	polyisobutylene, in primary forms
390230	propylene copolymers, in primary forms
390290	polymers of propylene or of other olefins, in primary forms (excl. polypropylene, polyisobutylene and propylene copolymers)

CN code	Description
390319	polystyrene, in primary forms (excl. expansible)
390390	polymers of styrene, in primary forms (excl. polystyrene, styrene-acrylonitrile copolymers "san" and acrylonitrile-butadiene-styrene "abs")
390410	poly"vinyl chloride", in primary forms, not mixed with any other substances
390450	vinylidene chloride polymers, in primary forms
390512	poly"vinyl acetate", in aqueous dispersion
390519	poly"vinyl acetate", in primary forms (excl. in aqueous dispersion)
390521	vinyl acetate copolymers, in aqueous dispersion
390529	vinyl acetate copolymers, in primary forms (excl. in aqueous dispersion)
390591	copolymers of vinyl, in primary forms (excl. vinyl chloride-vinyl acetate copolymers and other vinyl chloride copolymers, and vinyl acetate copolymers)
390610	poly"methyl methacrylate", in primary forms
390690	acrylic polymers, in primary forms (excl. poly"methyl methacrylate")
390721	polyethers, in primary forms (excl. polyacetals and goods of 3002 10)
390740	polycarbonates, in primary forms
390770	poly"lactic acid", in primary forms
390791	unsaturated polyallyl esters and other polyesters, in primary forms (excl. polycarbonates, alkyd resins, poly"ethylene terephthalate" and poly"lactic acid") -
390810	polyamides-6, -11, -12, -6,6, -6,9, -6,10 or -6,12, in primary forms
390890	polyamides, in primary forms (excl. polyamides-6, -11, -12, -6,6, -6,9, -6,10 and -6,12)
390920	melamine resins, in primary forms
390939	amino-resins, in primary forms (excl. urea, thiourea and melamine resins and mdi)
390940	phenolic resins, in primary forms

CN code	Description
390950	polyurethanes, in primary forms
391211	non-plasticised cellulose acetates, in primary forms
391290	cellulose and chemical derivatives thereof, n.e.s., in primary forms (excl. cellulose acetates, cellulose nitrates and cellulose ethers)
391520	waste, parings and scrap, of polymers of styrene
391710	artificial guts “sausage casings” of hardened protein or cellulose materials
391723	rigid tubes, pipes and hoses, of polymers of vinyl chloride
391731	flexible tubes, pipes and hoses, of plastics, burst pressure $\geq 27,6$ mpa
391732	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, without fittings
391733	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, with fittings, seals or connectors
392010	plates, sheets, film, foil and strip, of non-cellular polymers of ethylene, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. self-adhesive products, and floor, wall and ceiling coverings of heading 3918)
392061	plates, sheets, film, foil and strip, of non-cellular polycarbonates, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. those of poly“methyl methacrylate”, self-adhesive products, and floor, wall and ceiling coverings of heading 3918)
392069	plates, sheets, film, foil and strip, of non-cellular polyesters, not reinforced, laminated, supported or similarly combined with other materials, not worked or only surface-worked, or only cut to rectangular, incl. square, shapes (excl. polycarbonates, polyethylene terephthalate and other unsaturated polyesters, self-adhesive products, and floor, wall and ceiling coverings in heading 3918)
392073	plates, sheets, film, foil and strip, of non-cellular cellulose acetates, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. self-adhesive products, and floor, wall and ceiling coverings of heading 3918)

CN code	Description
392091	plates, sheets, film, foil and strip, of non-cellular poly“vinyl butyral”, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. self-adhesive products, floor, wall and ceiling coverings of heading 3918)
392119	plates, sheets, film, foil and strip, of cellular plastic, unworked or merely surface-worked or merely cut into squares or rectangles (excl.those of polymers of styrene, vinyl chloride, polyurethanes and regenerated cellulose, self-adhesive products, floor, wall and ceiling coverings of heading 3918 and sterile surgical or dental adhesion barriers of subheading 3006.10.30)
392290	bidets, lavatory pans, flushing cisterns and similar sanitary ware, of plastics (excl. baths, shower-baths, sinks, washbasins, lavatory seats and covers)
392520	doors, windows and their frames and thresholds for doors, of plastics
400211	styrene-butadiene rubber latex “sbr”; carboxylated styrene-butadiene rubber latex “xsbr”
400220	butadiene rubber “br”, in primary forms or in plates, sheets or strip
400231	isobutylene isoprene rubber “iir”, in primary forms or in plates, sheets or strip
400239	halo-isobutene-isoprene rubber “ciir” or “biir”, in primary forms or in plates, sheets or strip
400241	chloroprene latex “chlorobutadiene rubber, cr”
400251	latex of acrylonitrile-butadiene rubber “nbr”
400280	mixtures of natural rubber, balata, gutta-percha, guayule, chicle or similar types of natural rubber with synthetic rubber or factice, in primary forms or in plates, sheets or strip
400291	synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip (excl. styrene-butadiene rubber “sbr”, carboxylated styrene-butadiene rubber “xsbr”, butadiene rubber “br”, isobutylene isoprene rubber “iir”, halo-isobutene-isoprene rubber “ciir” or “biir”, chloroprene rubber “cr”, acrylonitrile-butadiene rubber “nbr”, isoprene rubber “ir” and non-conjugated ethylene-propylene diene rubber “epdm”)

CN code	Description
400299	synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip (excl. latex, styrene-butadiene rubber "sbr", carboxylated styrene-butadiene rubber "xsbr", butadiene rubber "br", isobutylene isoprene rubber "iir", halo-isobutene-isoprene rubber "ciir" or "biir", chloroprene rubber "cr", acrylonitrile-butadiene rubber "nbr", isoprene rubber "ir" and non-conjugated ethylene-propylene diene rubber "epdm")
400510	rubber, unvulcanised, compounded with carbon black or silica, in primary forms or in plates, sheets or strip
400520	compounded rubber, unvulcanised, in the form of solutions or dispersions (excl. rubber compounded with carbon black or silica, and mixtures of natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums containing synthetic rubber or factice derived from oils)
400591	compounded rubber, unvulcanised, in the form of plates, sheets or strip (excl. rubber compounded with carbon black or silica, and mixtures of natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums containing synthetic rubber or factice derived from oils)
400599	compounded, unvulcanised rubber in primary forms (excl. solutions and dispersions, those containing carbon black or silica, mixtures of natural rubber, balata, gutta-percha, guayule, chicle or similar types of natural rubber with synthetic rubber or factice, and those in the form of plates, sheets or strip)
400610	"camel-back" strips of unvulcanised rubber, for retreading rubber tyres
400821	plates, sheets and strip, of non-cellular rubber
400912	tubes, pipes and hoses, of vulcanised rubber (excl. hard rubber), not reinforced or otherwise combined with other materials, with fittings
400941	tubes, pipes and hoses, of vulcanised rubber (excl. hard rubber), reinforced or otherwise combined with materials other than metal or textile materials, without fittings
401031	endless transmission belts of trapezoidal cross-section "v-belts", of vulcanised rubber, v-ribbed, of an outside circumference > 60 cm but <= 180 cm

CN code	Description
401033	endless transmission belts of trapezoidal cross-section “v-belts”, of vulcanised rubber, v-ribbed, of an outside circumference > 180 cm but <= 240 cm
401035	endless synchronous belts, of vulcanised rubber, of an outside circumference > 60 cm but <= 150 cm
401036	endless synchronous belts, of vulcanised rubber, of an outside circumference > 150 cm but <= 198 cm
401039	transmission belts or belting, of vulcanised rubber (excl. endless transmission belts of trapezoidal cross-section “v-belts”, v-ribbed, of an outside circumference > 60 cm but <= 240 cm and endless synchronous belts of an outside circumference > 60 cm but <= 198 cm)
401211	retreaded pneumatic tyres, of rubber, of a kind used on motor cars “incl. station wagons and racing cars”
401213	retreaded pneumatic tyres, of rubber, of a kind used on aircraft
401219	retreaded pneumatic tyres, of rubber (excl. of a kind used on motor cars, station wagons, racing cars, buses, lorries and aircraft)
401220	used pneumatic tyres of rubber
401693	gaskets, washers and other seals, of vulcanised rubber (excl. hard rubber and those of cellular rubber)
440719	coniferous wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness of > 6 mm (excl. pine “ <i>pinus</i> spp.”, fir “ <i>abies</i> spp.” and spruce “ <i>picea</i> spp.”)
440792	beech “ <i>fagus</i> spp.”, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness of > 6 mm
440794	cherry “ <i>prunus</i> spp.”, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness of > 6 mm
440797	poplar and aspen “ <i>populus</i> spp.”, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness of > 6 mm

CN code	Description
440799	wood, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness of > 6 mm (excl. tropical wood, coniferous wood, oak " <i>quercus</i> spp.", beech " <i>fagus</i> spp.", maple " <i>acer</i> spp.", cherry " <i>prunus</i> spp.", ash " <i>fraxinus</i> spp.", birch " <i>betula</i> spp.", poplar and aspen " <i>populus</i> spp.")
440810	sheets for veneering, incl. those obtained by slicing laminated wood, for coniferous plywood or for other similar laminated coniferous wood and other coniferous wood, sawn lengthwise, sliced or peeled, whether or not planed, sanded, spliced or end-jointed, of a thickness of <= 6 mm
441113	medium density fibreboard "mdf" of wood, of a thickness > 5 mm but <= 9 mm
441194	fibreboard of wood or other ligneous materials, whether or not agglomerated with resins or other organic bonding agents, of a density of <= 0,5 g/cm ³ (excl. medium density fibreboard "mdf"; particle board, whether or not bonded with one or more sheets of fibreboard; laminated wood with a layer of plywood; cellular wood panels of which both sides are fibreboard; paperboard; identifiable furniture components)
441231	plywood consisting solely of sheets of wood <= 6 mm thick, with at least one outer ply of tropical wood (excl. sheets of compressed wood, cellular wood panels, inlaid wood and sheets identifiable as furniture components)
441233	plywood consisting solely of sheets of wood <= 6 mm thick, with at least one outer ply of non-coniferous wood (excl. of bamboo, with an outer ply of tropical wood or of alder, ash, beech, birch, cherry, chestnut, elm, eucalyptus, hickory, horse chestnut, lime, maple, oak, plane tree, poplar, aspen, robinia, tulipwood or walnut, and sheets of compressed wood, cellular wood panels, inlaid wood and sheets identifiable as furniture components)
441294	laminated wood as blockboard, laminboard or battenboard (excl. of bamboo, plywood consisting solely of sheets of wood <= 6 mm thick, sheets of compressed wood, inlaid wood and sheets identifiable as furniture components)
441600	casks, barrels, vats, tubs and other coopers' products parts thereof, of wood, incl. staves

CN code	Description
441840	wooden shuttering for concrete constructional work (excl. plywood boarding)
441860	posts and beams, of wood
441879	flooring panels, assembled, of wood other than bamboo (excl. multilayer panels and panels for mosaic floors)
450310	corks and stoppers of all types, of natural cork, incl. round-edged blanks
450410	tiles of any shape, blocks, plates, sheets and strip, solid cylinders, incl. discs, of agglomerated cork
470100	mechanical wood pulp, not chemically treated
470319	unbleached non-coniferous chemical wood pulp, soda or sulphate (excl. dissolving grades)
470321	semi-bleached or bleached coniferous chemical wood pulp, soda or sulphate (excl. dissolving grades)
470329	semi-bleached or bleached non-coniferous chemical wood pulp, soda or sulphate (excl. dissolving grades)
470411	unbleached coniferous chemical wood pulp, sulphite (excl. dissolving grades)
470421	semi-bleached or bleached coniferous chemical wood pulp, sulphite (excl. dissolving grades)
470429	semi-bleached or bleached non-coniferous chemical wood pulp, sulphite (excl. dissolving grades)
470500	wood pulp obtained by a combination of mechanical and chemical pulping processes
470630	pulps of fibrous cellulosic bamboo material
470692	chemical pulp of fibrous cellulosic material (excl. that of bamboo, wood, cotton linters and fibres derived from recovered [waste and scrap] paper or paperboard)
470710	recovered "waste and scrap" paper or paperboard of unbleached kraft paper, corrugated paper or corrugated paperboard

CN code	Description
470730	recovered “waste and scrap” paper or paperboard made mainly of mechanical pulp, e.g. newspapers, journals and similar printed matter
480220	paper and paperboard of a kind used as a base for photosensitive, heat-sensitive or electrosensitive paper and paperboard, uncoated, in rolls or in square or rectangular sheets, of any size
480240	wallpaper base, uncoated
480258	uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and punch-tape paper, in rolls or in square or rectangular sheets, of any size, not containing fibres obtained by a mechanical or chemi-mechanical process or of which $\leq 10\%$ by weight of the total fibre content consists of such fibres, weighing $> 150 \text{ g/m}^2$, n.e.s.
480261	uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and punch-tape paper, in rolls of any size, of which $> 10\%$ by weight of the total fibre content consists of fibres obtained by a mechanical or chemi-mechanical process, n.e.s.
480411	unbleached kraftliner, uncoated, in rolls of a width $> 36 \text{ cm}$
480419	kraftliner, uncoated, in rolls of a width $> 36 \text{ cm}$ (excl. unbleached and goods of heading 4802 and 4803)
480421	unbleached sack kraft paper, uncoated, in rolls of a width $> 36 \text{ cm}$ (excl. goods of heading 4802, 4803 or 4808)
480429	sack kraft paper, uncoated, in rolls of a width $> 36 \text{ cm}$ (excl. unbleached, and goods of heading 4802, 4803 or 4808)
480431	unbleached kraft paper and paperboard, uncoated, in rolls of a width $> 36 \text{ cm}$ or in square or rectangular sheets with one side $> 36 \text{ cm}$ and the other side $> 15 \text{ cm}$ in the unfolded state, weighing $\leq 150 \text{ g/m}^2$ (excl. kraftliner, sack kraft paper and goods of heading 4802, 4803 or 4808)
480439	kraft paper and paperboard, uncoated, in rolls of a width $> 36 \text{ cm}$ or in square or rectangular sheets with one side $> 36 \text{ cm}$ and the other side $> 15 \text{ cm}$ in the unfolded state, weighing $\leq 150 \text{ g/m}^2$ (excl. unbleached, kraftliner, sack kraft paper and goods of heading 4802, 4803 or 4808)

CN code	Description
480441	unbleached kraft paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing > 150 g to < 225 g/m ² (excl. kraftliner, sack kraft paper, and goods of heading 4802, 4803 or 4808)
480442	kraft paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing > 150 g to < 225 g/m ² , bleached uniformly in the mass, containing > 95 % chemically processed wood fibre by weight in relation to the total fibre content (excl. kraftliner, sack kraft paper and goods of heading 4802, 4803 or 4808)
480449	kraft paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing > 150 g to < 225 g/m ² (excl. unbleached, bleached uniformly in the mass and containing > 95 % chemically processed wood fibre by weight in relation to the total fibre content, kraftliner, sack kraft paper and goods of heading 4802, 4803 or 4808)
480452	kraft paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing \geq 225 g/m ² , bleached uniformly in the mass, containing > 95 % chemically processed wood fibre by weight in relation to the total fibre content (excl. kraftliner, sack kraft paper and goods of heading 4802, 4803 or 4808)
480459	kraft paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing \geq 225 g/m ² (excl. unbleached or bleached uniformly in the mass and containing > 95 % chemically prepared wood fibre by weight in relation to the total fibre content, and kraftliner, sack kraft paper and goods of heading 4802, 4803 or 4808)

CN code	Description
480524	testliner “recycled liner board”, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing $\leq 150 \text{ g/m}^2$
480525	testliner “recycled liner board”, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing $> 150 \text{ g/m}^2$
480540	filter paper and paperboard, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state
480591	paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing $\leq 150 \text{ g/m}^2$, n.e.s.
480592	paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing $> 150 \text{ g}$ to $< 225 \text{ g/m}^2$, n.e.s.
480610	vegetable parchment, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state
480620	greaseproof papers, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state
480630	tracing papers, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state
480640	glassine and other glazed transparent or translucent papers, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state (excl. vegetable parchment, greaseproof papers and tracing papers)
480700	composite paper and paperboard “made by sticking flat layers of paper or paperboard together with an adhesive”, not surface-coated or impregnated, whether or not internally reinforced, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state

CN code	Description
480890	paper and paperboard, creped, crinkled, embossed or perforated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state (excl. sack kraft and other kraft paper, and goods of heading 4803)
480920	self-copy paper, whether or not printed, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state (excl. carbon and similar copying papers)
481013	paper and paperboard used for writing, printing or other graphic purposes, not containing fibres obtained by a mechanical or chemi-mechanical process or of which ≤ 10 % by weight of the total fibre content consists of such fibres, coated on one or both sides with kaolin or other inorganic substances, in rolls of any size
481019	paper and paperboard used for writing, printing or other graphic purposes, not containing fibres obtained by a mechanical or chemi-mechanical process or of which ≤ 10 % by weight of the total fibre content consists of such fibres, coated on one or both sides with kaolin or other inorganic substances, in square or rectangular sheets with one side > 435 mm or with one side ≤ 435 mm and the other side > 297 mm in the unfolded state
481022	lightweight coated paper used for writing, printing or other graphic purposes, total weight ≤ 72 g/m ² , coating weight ≤ 15 g/m ² per side, on a base of which ≥ 50 % by weight of the total fibre content consists of fibres obtained by a mechanical process, coated on both sides with kaolin or other inorganic substances, in rolls or in square or rectangular sheets, of any size
481031	kraft paper and paperboard, bleached uniformly throughout the mass and containing > 95 % chemically processed wood fibres by weight in relation to the total fibre content, coated on one or both sides with kaolin or other inorganic substances, in rolls or in square or rectangular sheets, of any size, weighing ≤ 150 g/m ² (excl. that for writing, printing or other graphic purposes)
481039	kraft paper and paperboard, coated on one or both sides with kaolin or other inorganic substances, in rolls or in square or rectangular sheets, of any size (excl. that for writing, printing or other graphic purposes; paper and paperboard bleached uniformly in the mass and containing > 95 % chemically processed wood fibres by weight in relation to the total fibre content)

CN code	Description
481092	multi-ply paper and paperboard, coated on one or both sides with kaolin or other inorganic substances, in rolls or in square or rectangular sheets, of any size (excl. that for writing, printing or other graphic purposes, kraft paper and paperboard)
481099	paper and paperboard, coated on one or both sides with kaolin “china clay” or other inorganic substances, with or without a binder, and with no other coating, whether or not surface-coloured, surface-decorated or printed, in rolls or in square or rectangular sheets, of any size (excl. that for writing, printing or other graphic purposes, kraft paper and paperboard, multi-ply paper and paperboard, and with no other coating)
481110	tarred, bituminised or asphalted paper and paperboard, in rolls or in square or rectangular sheets, of any size
481151	paper and paperboard, surface-coloured, surface-decorated or printed, coated, impregnated or covered with artificial resins or plastics, in rolls or in square or rectangular sheets, of any size, bleached and weighing > 150 g/m ² (excl. adhesives)
481159	paper and paperboard, surface-coloured, surface-decorated or printed, coated, impregnated or covered with artificial resins or plastics, in rolls or in square or rectangular sheets, of any size (excl. bleached and weighing > 150 g/m ² , and adhesives)
481160	paper and paperboard, coated, impregnated or covered with wax, paraffin wax, stearin, oil or glycerol, in rolls or in square or rectangular sheets, of any size (excl. goods of heading 4803, 4809 and 4818)
481190	paper, paperboard, cellulose wadding and webs of soft cellulose, coated, impregnated, covered, surface-coloured, surface-decorated or printed, in rolls or in square or rectangular sheets, of any size (excl. goods of heading 4803, 4809, 4810 and 4818, and of subheading 4811.10 to 4811.60)
481490	wallpaper and similar wallcoverings of paper, and window transparencies of paper (excl. wallcoverings of paper, consisting of paper coated or covered, on the face side, with a grained, embossed, coloured or design-printed or otherwise decorated layer of plastics)
481920	folding cartons, boxes and cases, of non-corrugated paper or paperboard
482210	bobbins, spools, cops and similar supports of paper pulp, paper or paperboard, whether or not perforated or hardened, for winding textile yarn

CN code	Description
482320	filter paper and paperboard, in strips or rolls of a width ≤ 36 cm, in rectangular or square sheets, of which no side > 36 cm in the unfolded state, or cut to shape other than rectangular or square
482340	rolls, sheets and dials, printed for self-recording apparatus, in rolls of a width ≤ 36 cm, in rectangular or square sheets of which no side > 36 cm in the unfolded state, or cut into dials
482370	moulded or pressed articles of paper pulp, n.e.s.
490600	plans and drawings for architectural, engineering, industrial, commercial, topographical or similar purposes, being originals drawn by hand; handwritten texts; photographic reproductions on sensitised paper and carbon copies of the foregoing
510539	fine animal hair, carded or combed (excl. wool and hair of kashmir "cashmere" goats)
510540	coarse animal hair, carded or combed
510610	carded wool yarn containing ≥ 85 % wool by weight (excl. that put up for retail sale)
510620	carded wool yarn containing predominantly, but < 85 % wool by weight (excl. that put up for retail sale)
510720	yarn of combed wool containing predominantly, but < 85 % wool by weight (excl. that put up for retail sale)
511211	woven fabrics containing ≥ 85 % combed wool or combed fine animal hair by weight and weighing ≤ 200 g/m ² (excl. fabrics for technical uses of heading 5911)
511219	woven fabrics containing ≥ 85 % combed wool or combed fine animal hair by weight and weighing > 200 g/m ²
520521	single cotton yarn, of combed fibres, containing ≥ 85 % cotton by weight and with a linear density of $\geq 714,29$ decitex " \leq mn 14" (excl. sewing thread and yarn put up for retail sale)
520528	single cotton yarn, of combed fibres, containing ≥ 85 % cotton by weight and with a linear density of $< 83,33$ decitex " $>$ mn 120" (excl. sewing thread and yarn put up for retail sale)

CN code	Description
520541	multiple “folded” or cabled cotton yarn, of combed fibres, containing ≥ 85 % cotton by weight and with a linear density of $\geq 714,29$ decitex “ \leq mn 14” per single yarn (excl. sewing thread and yarn put up for retail sale)
520642	multiple “folded” or cabled cotton yarn containing predominantly, but < 85 % cotton by weight, of combed fibres and with a linear density of 232,56 decitex to $< 714,29$ decitex “ $>$ mn 14 to mn 43” per single yarn (excl. sewing thread and yarn put up for retail sale)
520911	plain woven fabrics of cotton, containing ≥ 85 % cotton by weight and weighing > 200 g/m ² , unbleached
521119	woven fabrics of cotton, containing predominantly, but < 85 % cotton by weight, mixed principally or solely with man-made fibres and weighing > 200 g/m ² , unbleached (excl. those in three-thread or four-thread twill, incl. cross twill, and plain woven fabrics)
521151	plain woven fabrics of cotton, containing predominantly, but < 85 % cotton by weight, mixed principally or solely with man-made fibres and weighing > 200 g/m ² , printed
521159	woven fabrics of cotton, containing predominantly, but < 85 % cotton by weight, mixed principally or solely with man-made fibres and weighing > 200 g/m ² , printed (excl. those in three-thread or four-thread twill, incl. cross twill, and plain woven fabrics)
530820	hemp yarn
540263	multiple “folded” or cabled filament yarn of polypropylene, incl. monofilament of < 67 decitex (excl. sewing thread, yarn put up for retail sale and textured yarn)
540333	filament yarn of cellulose acetate, incl. monofilament of < 67 decitex, single (excl. sewing thread, high-tenacity yarn and yarn put up for retail sale)
540342	multiple “folded” or cabled filament yarn of cellulose acetate, incl. monofilament of < 67 decitex (excl. sewing thread, high-tenacity yarn and yarn put up for retail sale)
540412	polypropylene monofilament of ≥ 67 decitex and with a cross sectional dimension of ≤ 1 mm (excl. elastomers)
540419	synthetic monofilament of ≥ 67 decitex and with a cross sectional dimension of ≤ 1 mm (excl. of elastomers and polypropylene)

CN code	Description
540490	strip and the like, e.g. artificial straw, of synthetic textile material, with an apparent width of ≤ 5 mm
540730	woven fabrics of synthetic filament yarn, incl. monofilament of ≥ 67 decitex and with a cross sectional dimension of ≤ 1 mm, consisting of layers of parallel textile yarns superimposed on each other at acute or right angles, the layers being bonded at the intersections of the yarns by an adhesive or by thermal bonding
550190	synthetic filament tow as specified in note 1 to chapter 55 (excl. that of acrylic, modacrylic, polyesters, polypropylene, nylon or other polyamide filament)
550210	artificial filament tow as specified in note 1 to chapter 55, of acetate
550319	staple fibres of nylon or other polyamides, not carded, combed or otherwise processed for spinning (excl. those of aramids)
550340	staple fibres of polypropylene, not carded, combed or otherwise processed for spinning
550490	artificial staple fibres, not carded, combed or otherwise processed for spinning (excl. those of viscose rayon)
550640	staple fibres of polypropylene, carded, combed or otherwise processed for spinning
550700	artificial staple fibres, carded, combed or otherwise processed for spinning
551221	woven fabrics containing ≥ 85 % acrylic or modacrylic staple fibres by weight, unbleached or bleached
551299	woven fabrics containing ≥ 85 % synthetic staple fibres by weight, dyed, made of yarn of different colours or printed (excl. those of acrylic, modacrylic or polyester staple fibres)
551644	woven fabrics containing predominantly, but < 85 % artificial staple fibres by weight, mixed principally or solely with cotton, printed
551694	woven fabrics containing predominantly, but < 85 % artificial staple fibres by weight, other than those mixed principally or solely with cotton, wool, fine animal hair or man-made filament, printed

CN code	Description
560129	wadding of textile materials and articles thereof (excl. of cotton or man-made fibres; sanitary towels and tampons, napkins and napkin liners for babies and similar sanitary articles, wadding and articles thereof, impregnated or covered with medicated substances or put up for retail for medical, surgical, dental or veterinary purposes, or impregnated, coated or covered with perfumes, make-up, soaps, cleansing agents, etc.)
560130	textile flock and dust and mill neps
560490	textile yarn, strip and the like of heading 5404 and 5405, impregnated, coated, covered or sheathed with rubber or plastics (excl. imitation catgut, thread and cord with fish-hook attachments or otherwise put up as fishing line)
560500	metallised yarn, whether or not gimped, being textile yarn, or strip or the like of heading 5404 or 5405, of textile fibres, combined with metal in the form of thread, strip or powder or covered with metal (excl. yarns manufactured from a mixture of textile fibres and metal fibres, with anti-static properties; yarns reinforced with metal wire; articles with the character of trimmings)
560741	binder or baler twine, of polyethylene or polypropylene
580127	warp pile fabrics, of cotton (excl. terry towelling and similar woven terry fabrics, tufted textile fabrics and narrow woven fabrics of heading 5806)
580300	gauze (excl. narrow woven fabrics of heading 5806)
580640	narrow fabrics consisting of warp without weft assembled by means of an adhesive "bolducs", with a width of ≤ 30 cm
590110	textile fabrics coated with gum or amylaceous substances, of a kind used for the outer covers of books, the manufacture of boxes and articles of cardboard or the like
590500	textile wallcoverings
590800	textile wicks, woven, plaited or knitted, for lamps, stoves, lighters, candles or the like; incandescent gas mantles and tubular knitted gas-mantle fabric for incandescent gas mantles, whether or not impregnated (excl. wax-covered wicks of the taper variety, fuses and detonating fuses, wicks in the form of textile yarn and glass-fibre wicks)

CN code	Description
591000	transmission or conveyor belts or belting, of textile material, whether or not impregnated, coated, covered or laminated with plastics, or reinforced with metal or other material (excl. those of a thickness of < 3 mm and of indeterminate length or cut to length only, and those impregnated, coated, covered or laminated with rubber or made of yarn or cord impregnated or coated with rubber)
591110	textile fabrics, felt and felt-lined woven fabrics, coated, covered or laminated with rubber, leather or other material, of a kind used for card clothing, and similar fabrics of a kind used for other technical purposes, incl. narrow fabrics made of velvet impregnated with rubber, for covering weaving spindles “weaving beams”
591131	textile fabrics and felts, endless or fitted with linking devices, of a kind used in papermaking or similar machines, e.g. for paper pulp or asbestos-cement, weighing < 650 g/m ²
591132	textile fabrics and felts, endless or fitted with linking devices, of a kind used in papermaking or similar machines, e.g. for paper pulp or asbestos-cement, weighing >= 650 g/m ²
591140	straining cloth of a kind used in oil-presses or for similar technical purposes, incl. that of human hair
600199	pile fabrics, knitted or crocheted (excl. cotton or man-made fibres and “long pile” fabrics)
600340	knitted or crocheted fabrics of artificial fibres, of a width of <= 30 cm (excl. those containing by weight >= 5 % of elastomeric yarn or rubber thread, and pile fabrics, incl. “long pile”, looped pile fabrics, labels, badges and similar articles, knitted or crocheted fabrics, impregnated, coated, covered or laminated, and sterile surgical or dental adhesion barriers of subheading 3006.10.30)
600536	unbleached or bleached warp knit fabrics of synthetic fibres “incl. those made on galloon knitting machines”, of a width of > 30 cm (excl. those containing by weight >= 5 % of elastomeric yarn or rubber thread, and pile fabrics, incl. “long pile”, looped pile fabrics, labels, badges and similar articles, and knitted or crocheted fabrics, impregnated, coated, covered or laminated)

CN code	Description
600544	printed warp knit fabrics of artificial fibres “incl. those made on galloon knitting machines”, of a width of > 30 cm (excl. those containing by weight \geq 5 % of elastomeric yarn or rubber thread, and pile fabrics, incl. “long pile”, looped pile fabrics, labels, badges and similar articles, and knitted or crocheted fabrics, impregnated, coated, covered or laminated)
600610	fabrics, knitted or crocheted, of a width of > 30 cm, of wool or fine animal hair (excl. warp knit fabrics “incl. those made on galloon knitting machines”, those containing by weight \geq 5 % of elastomeric yarn or rubber thread, and pile fabrics, incl. “long pile”, looped pile fabrics, labels, badges and similar articles, and knitted or crocheted fabrics, impregnated, coated, covered or laminated)
630900	worn clothing and clothing accessories, blankets and travelling rugs, household linen and articles for interior furnishing, of all types of textile materials, incl. all types of footwear and headgear, showing signs of appreciable wear and presented in bulk or in bales, sacks or similar packings (excl. carpets, other floor coverings and tapestries)
680292	calcareous stone, in any form (excl. marble, travertine and alabaster, tiles, cubes and similar articles of subheading 6802.10, imitation jewellery, clocks, lamps and lighting fittings and parts thereof, original sculptures and statuary, setts, curbstones and flagstones)
680423	millstones, grindstones, grinding wheels and the like, without frameworks, for sharpening, polishing, trueing or cutting, of natural stone (excl. of agglomerated natural abrasives or ceramics, perfumed pumice stones, hand sharpening or polishing stones, and grinding wheels etc. specifically for dental drill engines)
680610	slag-wool, rock-wool and similar mineral wools, incl. intermixtures thereof, in bulk, sheets or rolls
680690	mixtures and articles of heat-insulating, sound-insulating or sound absorbing mineral materials (excl. slag-wool, rock-wool and similar mineral wools, exfoliated vermiculite, expanded clays, foamed slag and similar expanded mineral materials, articles of light concrete, asbestos-cement, cellulose fibre-cement or the like, mixtures and other articles of or based on asbestos, and ceramic products)

CN code	Description
680710	articles of asphalt or of similar materials, e.g. petroleum bitumen or coal tar pitch, in rolls
680790	articles of asphalt or of similar materials, e.g. petroleum bitumen or coal tar pitch (excl. in rolls)
680919	boards, sheets, panels, tiles and similar articles, of plaster or compositions based on plaster (excl. ornamented, faced or reinforced with paper or paperboard only, and with plaster agglomerated articles for heat-insulation, sound-insulation or sound absorption)
681091	prefabricated structural components for building or civil engineering of cement, concrete or artificial stone, whether or not reinforced
681181	corrugated sheets of cellulose fibre-cement or the like, not containing asbestos
681182	sheets, panels, paving, tiles and similar articles, of cellulose fibre-cement or the like, not containing asbestos (excl. corrugated sheets)
681189	articles of cellulose fibre-cement or the like, not containing asbestos (excl. corrugated and other sheets, panels, tiles and similar articles)
681389	friction material and articles thereof, e.g. sheets, rolls, strips, segments, discs, washers and pads, for clutches and the like, with a basis of mineral substances or cellulose, whether or not combined with textile or other materials (excl. containing asbestos, and brake linings and pads)
681490	worked mica and articles of mica (excl. electrical insulators, insulating fittings, resistors and capacitors, protective goggles of mica and their glasses, mica in the form of christmas tree decorations, and plates, sheets and strips of agglomerated or reconstituted mica, whether or not on supports)
690100	bricks, blocks, tiles and other ceramic goods of siliceous fossil meals, e.g. kieselguhr, tripolite or diatomite, or of similar siliceous earths
690410	building bricks (excl. those of siliceous fossil meals or similar siliceous earths, and refractory bricks of heading 6902)
690510	roofing tiles

CN code	Description
690590	ceramic chimney pots, cowls, chimney liners, architectural ornaments and other ceramic constructional goods (excl. of siliceous fossil meals or similar siliceous earths, refractory ceramic constructional components, pipes and other components for drainage and similar purposes, and roofing tiles)
690600	ceramic pipes, conduits, guttering and pipe fittings (excl. of siliceous fossil meals or similar siliceous earths, refractory ceramic goods, chimney liners, pipes specifically manufactured for laboratories, insulating tubing and fittings and other piping for electrotechnical purposes)
690722	ceramic flags and paving, hearth or wall tiles, of a water absorption coefficient by weight > 0,5 % but ≤ 10 % (excl. mosaic cubes and finishing ceramics)
690740	finishing ceramics
690990	ceramic troughs, tubs and similar receptacles of a kind used in agriculture; ceramic pots, jars and similar articles of a kind used for the conveyance or packing of goods (excl. general-purpose storage vessels for laboratories, containers for shops and household articles)
700220	rods of glass, unworked
700231	tubes of fused quartz or other fused silica, unworked
700232	tubes of glass having a linear coefficient of expansion ≤ 5 x 10 ⁻⁶ per kelvin within a temperature range of 0°C to 300°C, unworked (excl. tubes of glass having a linear coefficient of expansion ≤ 5 x 10 ⁻⁶ per kelvin within a temperature range of 0°C to 300°C)
700239	tubes of glass, unworked (excl. tubes of glass having a linear coefficient of expansion ≤ 5 x 10 ⁻⁶ per kelvin within a temperature range of 0°C to 300°C or of fused quartz or other fused silica)
700330	profiles of glass, whether or not having an absorbent, reflecting or non-reflecting layer, but not otherwise worked
700420	sheets of glass, drawn or blown, coloured throughout the mass "body tinted" opacified, flashed or having an absorbent, reflecting or non-reflecting layer, but not otherwise worked
700510	float glass and surface ground or polished glass, in sheets, having an absorbent, reflecting or non-reflecting layer, but not otherwise worked (excl. wired glass)
700530	float glass and surface ground and polished glass, in sheets, whether or not having an absorbent, reflecting or non-reflecting layer, wired, but not otherwise worked

CN code	Description
700711	toughened “tempered” safety glass, of size and shape suitable for incorporation in motor vehicles, aircraft, spacecraft, vessels and other vehicles
700729	laminated safety glass (excl. glass of size and shape suitable for incorporation in motor vehicles, aircraft, spacecraft, vessels or other vehicles, multiple-walled insulating units)
701110	glass envelopes, incl. bulbs and tubes, open, and glass parts thereof, without fittings, for electric lighting
720292	ferro-vanadium
720712	semi-finished products of iron or non-alloy steel containing, by weight, < 0,25 % of carbon, of rectangular “other than square” cross-section, the width measuring \geq twice the thickness
721090	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled “cold-reduced”, clad, plated or coated (excl. tinned, plated or coated with lead, zinc, chromium oxides, chromium and chromium oxides, or aluminium, painted, varnished or coated with plastics)
721113	flat-rolled products of iron or non-alloy steel, simply hot-rolled on four faces or in a closed box pass, not clad, plated or coated, of a width of > 150 mm but < 600 mm and a thickness of \geq 4 mm, not in coils, without patterns in relief, commonly known as “wide flats”
721114	flat-rolled products of iron or non-alloy steel, of a width < 600 mm, not further worked than hot-rolled, not clad, plated or coated, of a thickness of \geq 4,75 mm (excl. “wide flats”)
721129	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, simply cold-rolled “cold-reduced”, not clad, plated or coated, containing by weight \geq 0,25 % of carbon
721210	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled “cold-reduced”, tinned
721260	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled “cold-reduced”, clad
721320	bars and rods, hot-rolled, in irregularly wound coils, of non-alloy free-cutting steel (excl. bars and rods containing indentations, ribs, grooves or other deformations produced during the rolling process)

CN code	Description
721399	bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel (excl. products of circular cross-section measuring < 14 mm in diameter, bars and rods of free-cutting steel, and bars and rods with indentations, ribs, grooves or other deformations produced during the rolling process)
721550	bars and rods, of iron or non-alloy steel, not further worked than cold-formed or cold-finished (excl. of free-cutting steel)
721610	u, i or h sections of iron or non-alloy steel, not further worked than hot-rolled, hot-drawn or extruded, of a height of < 80 mm
721622	t sections of iron or non-alloy steel, not further worked than hot-rolled, hot-drawn or extruded, of a height of < 80 mm
721633	h sections of iron or non-alloy steel, not further worked than hot-rolled, hot-drawn or hot-extruded, of a height \geq 80 mm
721669	angles, shapes and sections, of iron or non-alloy steel, not further worked than cold-formed or cold-finished (excl. profiled sheet)
721891	semi-finished products of stainless steel, of rectangular “other than square” cross-section
722230	other bars and rods of stainless steel, cold-formed or cold-finished and further worked, or not further worked than forged, or forged, or hot-formed by other means and further worked
722410	steel, alloy, other than stainless, in ingots or other primary forms (excl. waste and scrap in ingot form, and products obtained by continuous casting)
722519	flat-rolled products of silicon-electrical steel, of a width of \geq 600 mm, non-grain-oriented
722530	flat-rolled products of alloy steel other than stainless, of a width of \geq 600 mm, not further worked than hot-rolled, in coils (excl. products of silicon-electrical steel)
722599	flat-rolled products of alloy steel other than stainless, of a width of \geq 600 mm, hot-rolled or cold-rolled “cold-reduced” and further worked (excl. plated or coated with zinc and products of silicon-electrical steel)
722691	flat-rolled products of alloy steel other than stainless, of a width of < 600 mm, not further worked than hot-rolled (excl. products of high-speed steel or silicon-electrical steel)

CN code	Description
722830	bars and rods of alloy steel other than stainless, not further worked than hot-rolled, hot-drawn or extruded (excl. products of high-speed steel or silico-manganese steel, semi-finished products, flat-rolled products and hot-rolled bars and rods in irregularly wound coils)
722860	bars and rods of alloy steel other than stainless, cold-formed or cold-finished and further worked or hot-formed and further worked, n.e.s. (excl. products of high-speed steel or silico-manganese steel, semi-finished products, flat-rolled products and hot-rolled bars and rods in irregularly wound coils)
722870	angles, shapes and sections of alloy steel other than stainless, n.e.s.
722880	hollow drill bars and rods, of alloy or non-alloy steel
722990	wire of alloy steel other than stainless, in coils (excl. bars and rods and wire of silico-manganese steel)
730120	angles, shapes and sections, of iron or steel, welded
730424	casing and tubing, seamless, of a kind used for drilling for oil or gas, of stainless steel
730539	tubes and pipes having circular cross-sections and an external diameter of > 406,4 mm, of iron or steel, welded (excl. products longitudinally welded or of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
730650	Tubes, pipes and hollow profiles, welded, of circular cross-section, of alloy steel other than stainless (excl. tubes and pipes having internal and external circular cross-sections and an external diameter of > 406,4 mm, and line pipe of a kind used for oil or gas pipelines or casing and tubing of a kind used in drilling for oil or gas)
730722	Threaded elbows, bends and sleeves
730900	Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment
731412	Endless bands of stainless steel wire, for machinery
731824	Cotters and cotter pins, of iron or steel
732020	Helical springs, of iron or steel (excl. flat spiral springs, clock and watch springs, springs for sticks and handles of umbrellas or parasols, and shock absorbers of section 17)

CN code	Description
732290	Air heaters and hot-air distributors, incl. distributors which can also distribute fresh or conditioned air, non-electrically heated, incorporating a motor-driven fan or blower, and parts thereof, of iron or steel
732429	baths of steel sheet
740710	bars, rods and profiles, of refined copper
740811	wire of refined copper, with a maximum cross-sectional dimension of > 6 mm
740819	wire of refined copper, with a maximum cross-sectional dimension of <= 6 mm
740911	plates, sheets and strip, of refined copper, in coils, of a thickness of > 0,15 mm (excl. expanded sheet and strip and electrically insulated strip)
740919	plates, sheets and strip, of refined copper, not in coils, of a thickness of > 0,15 mm (excl. expanded sheet and strip and electrically insulated strip)
740940	plates, sheets and strip, of copper-nickel base alloys "cupro-nickel" or copper-nickel-zinc base alloys "nickel silver", of a thickness of > 0,15 mm (excl. expanded sheet and strip and electrically insulated strip)
741129	tubes and pipes of copper alloys (excl. copper-zinc base alloys "brass", copper-nickel base alloys "cupro-nickel" and copper-nickel-zinc base alloys "nickel silver")
741521	washers, "incl. spring washers and spring lock washers", of copper
750511	bars, rods, profiles and wire, of non-alloy nickel, n.e.s. (excl. electrically insulated products)
750521	wire of non-alloy nickel (excl. electrically insulated products)
750610	plates, sheets, strip and foil, of non-alloy nickel (excl. expanded plates, sheets or strip)
750711	tubes and pipes of non-alloy nickel
750890	articles of nickel
760519	Wire of non-alloy aluminium, with a maximum cross-sectional dimension of <= 7 mm (other than stranded wires, cables, ropes and other articles of heading 7614, electrically insulated wires, strings for musical instruments)
760529	Wire, of aluminium alloys, having a maximum cross-sectional dimension of <= 7 mm (other than stranded wires, cables, ropes and other articles of heading 7614, electrically insulated wires, strings for musical instruments)

CN code	Description
760692	Plates, sheets and strip, of aluminium alloys, of a thickness of > 0,2 mm (other than square or rectangular)
760720	Aluminium foil, backed, of a thickness (excl. any backing) of <= 0,2 mm (excl. stamping foils of heading 3212, and foil made up as christmas tree decorating material)
761100	Reservoirs, tanks, vats and similar containers, of aluminium, for any material (other than compressed or liquefied gas), of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated (excl. containers specifically constructed or equipped for one or more types of transport)
761290	Casks, drums, cans, boxes and similar containers, incl. rigid tubular containers, of aluminium, for any material (other than compressed or liquefied gas), of a capacity of <= 300 l, n.e.s.
761300	Aluminium containers for compressed or liquefied gas
761610	Nails, tacks, staples (other than those of heading 8305), screws, bolts, nuts, screw hooks, rivets, cotters, cotter pins, washers and similar articles
780411	Lead plates, sheets, strip and foil; lead powders and flakes - Plates, sheets, strip and foil - Sheets, strip and foil of a thickness (excluding any backing) not exceeding 0,2 mm
780419	Lead plates, sheets, strip and foil; lead powders and flakes - Plates, sheets, strip and foil - Other
790500	Zinc plates, sheets, strip and foil
800120	Unwrought tin alloys
800300	Tin bars, rods, profiles and wire
800700	Articles of tin
810110	Tungsten powders
810297	Molybdenum waste and scrap (excl. ash and residues containing molybdenum)
810590	Articles of cobalt
810931	Zirconium waste and scrap - Containing less than 1 part hafnium to 500 parts zirconium by weight

CN code	Description
810939	Zirconium waste and scrap - Other
810991	Articles of zirconium - Containing less than 1 part hafnium to 500 part zirconium by weight
810999	Articles of zirconium - Other
820220	Bandsaw blades of base metal
820760	Tools for boring or broaching
820810	Knives and cutting blades, for machines or for mechanical appliances - for metalworking
820820	Knives and cutting blades, for machines or for mechanical appliances - for wood-working
820830	Knives and cutting blades, for machines or for mechanical appliances - used by the food industry
820890	Knives and cutting blades, for machines or for mechanical appliances - other
830120	Locks used for motor vehicles, of base metal
830170	Keys presented separately
830230	Other mountings, fittings and similar articles suitable for motor vehicles
830710	Flexible tubing of iron or steel, with or without fittings
830990	Stoppers, caps and lids, incl. screw caps and pouring stoppers, capsules for bottles, threaded bungs, bung covers, seals and other packing accessories of base metal (excl. cork corks)
840212	Watertube boilers with a steam production not exceeding 45 tonnes per hour
840219	Other vapour generating boilers, including hybrid boilers
840220	Superheated water boilers
840290	Steam or other vapour generating boilers (other than central heating hot water boilers capable also of producing low pressure steam); superheated water boilers - Parts
840410	Auxiliary plant for use with boilers of heading 8402 or 8403, e.g. economizers, superheaters, soot removers and gas recoverers;

CN code	Description
840420	Condensers for steam or other vapour power units
840490	Producer gas or water gas generators, with or without their purifiers; acetylene gas generators and similar water process gas generators, with or without their purifiers - Parts
840590	Parts of producer gas or water gas generators and acetylene gas generators or similar water process gas generators, n.e.s.
840690	Steam turbines and other vapour turbines - Parts
841210	Reaction engines other than turbojets
841221	Engines and motors - linear acting (cylinders)
841229	Hydraulic power engines and motors - Other
841239	Pneumatic power engines and motors - Other
841490	Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters; gas-tight biological safety cabinets, whether or not fitted with filters - Parts
841583	Other air-conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, including those machines in which the humidity cannot be separately regulated - not incorporating a refrigerating unit
841610	Furnace burners for liquid fuel
841620	Furnace burners for pulverised solid fuel or gas, incl. combination burners
841630	Mechanical stokers, incl. their mechanical grates, mechanical ash dischargers and similar appliances (excl. burners)
841690	Parts of furnace burners such as mechanical stokers, incl. their mechanical grates, mechanical ash dischargers and similar appliances
841720	Bakery ovens, incl. biscuit ovens, non-electric
841919	Instantaneous or storage water heaters, non-electric (excl. instantaneous gas water heaters and boilers or water heaters for central heating)
842099	Parts of calendering or other rolling machines, other than for metals or glass, and cylinders therefor - Other

CN code	Description
842119	Centrifuges, including centrifugal dryers - other
842191	Parts of centrifuges, incl. centrifugal dryers
84248940	Mechanical appliances for projecting, dispersing, or spraying of a kind used solely or principally for the manufacture of printed circuits or printed circuit assemblies
84249020	Parts of mechanical appliances of subheading 8424 89 40
842511	Pulley tackle and hoists other than skip hoists or hoists of a kind used for raising vehicles powered by electric motor
842612	Mobile lifting frames on tyres and straddle carriers
842699	Ships' derricks; cranes, including cable cranes; mobile lifting frames, straddle carriers and works trucks fitted with a crane - Other
842820	Pneumatic elevators and conveyors
842832	Other continuous-action elevators and conveyors, for goods or materials - Other, bucket type
842833	Other continuous-action elevators and conveyors, for goods or materials - Other, belt type
842890	Other machinery
842919	Bulldozers and angledozers - Other
842959	Mechanical shovels, excavators and shovel loaders - Other
843010	Piledrivers and pile extractors
843039	Coal or rock cutters and tunnelling machinery - Other
843910	Machinery for making pulp of fibrous cellulosic material
843930	Machinery for finishing paper or paperboard
844090	Bookbinding machinery, including book-sewing machines - Parts
844130	Machines for making cartons, boxes, cases, tubes, drums or similar containers, other than by moulding

CN code	Description
844240	Parts of the foregoing machinery, apparatus or equipment
844313	Other offset printing machinery
844315	Letterpress printing machinery, other than reel fed, excluding flexographic printing
844316	Flexographic printing machinery
844317	Gravure printing machinery
844391	Parts and accessories of printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442
844400	Machines for extruding, drawing, texturing or cutting man-made textile materials
844811	Dobbies and jacquards; card-reducing, copying, punching or assembling machines for use therewith
844819	Auxiliary machinery for machines of heading 8444, 8445, 8446 or 8447 - Other
844833	Spindles, spindle flyers, spinning rings and ring travellers
844842	Reeds for looms, healds and heald-frames
844849	Parts and accessories of weaving machines (looms) or of their auxiliary machinery - Other
844851	Sinkers, needles and other articles used in forming stitches
845110	Dry-cleaning machines
845129	Drying machines - Other
845130	Ironing machines and presses (including fusing presses)
845190	Machinery (other than machines of heading 8450) for washing, cleaning, wringing, drying, ironing, pressing (including fusing presses), bleaching, dyeing, dressing, finishing, coating or impregnating textile yarns, fabrics or made-up textile articles and machines for applying the paste to the base fabric or other support used in the manufacture of floor coverings such as linoleum; machines for reeling, unreeling, folding, cutting or pinking textile fabrics - Parts

CN code	Description
845310	Machinery for preparing, tanning or working hides, skins or leather
845380	Other machinery
845390	Machinery for preparing, tanning or working hides, skins or leather or for making or repairing footwear or other articles of hides, skins or leather, other than sewing machines - Parts
845410	Converters
845910	Way-type unit head machines
845970	Other threading or tapping machines
846120	Shaping or slotting machines, for working metals, metal carbides or cermets
846130	Broaching machines, for working metals, metal carbides or cermets
846140	Gear-cutting, gear-grinding or gear-finishing machines
846190	Machine tools for planing, shaping, slotting, broaching, gear cutting, gear grinding or gear finishing, sawing, cutting-off and other machine tools working by removing metal or cermets, not elsewhere specified or included - Other
846520	Machining centres
846593	Grinding, sanding or polishing machines
846594	Bending or assembling machines
846610	Tool holders and self-opening dieheads
846691	Other parts and accessories suitable for use solely or principally with the machines of headings 8456 to 8465, including work or tool holders, self-opening dieheads, dividing heads and other special attachments for the machines; tool holders for any type of tool for working in the hand - For machines of heading 8464
846692	Other parts and accessories suitable for use solely or principally with the machines of headings 8456 to 8465, including work or tool holders, self-opening dieheads, dividing heads and other special attachments for the machines; tool holders for any type of tool for working in the hand - For machines of heading 8465

CN code	Description
847210	Duplicating machines
847230	Machines for sorting or folding mail or for inserting mail in envelopes or bands, machines for opening, closing or sealing mail and machines for affixing or cancelling postage stamps
847321	Parts and accessories of the electronic calculating machines of subheading 8470 10, 8470 21 or 8470 29
847410	Sorting, screening, separating or washing machines
847439	Mixing or kneading machines - Other
847480	Machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand - (excl. those for the casting or pressing of glass)
847521	Machines for making optical fibres and preforms thereof
847529	Machines for manufacturing or hot working glass or glassware - Other
847590	Machines for assembling electric or electronic lamps, tubes or valves or flashbulbs, in glass envelopes; machines for manufacturing or hot working glass or glassware - Parts
847740	Vacuum-moulding machines and other thermoforming machines
847751	For moulding or retreading pneumatic tyres or for moulding or otherwise forming inner tubes
847910	Machinery for public works, building or the like
847930	Presses for the manufacture of particle board or fibre building board of wood or other ligneous materials and other machinery for treating wood or cork
847950	Industrial robots, not elsewhere specified or included
847990	Machines and mechanical appliances having individual functions, not specified or included elsewhere in Chapter 84 - Parts

CN code	Description
848020	Mould bases
848030	Moulding patterns
848060	Moulds for mineral materials
848110	Pressure-reducing valves
848120	Valves for oleohydraulic or pneumatic transmissions
848140	Safety or relief valves
848220	Tapered roller bearings, including cone and tapered roller assemblies
848291	Balls, needles and rollers
848299	Other parts
848410	Gaskets and similar joints of metal sheeting combined with other material or of two or more layers of metal
848420	Mechanical seals
848490	Gaskets and similar joints of metal sheeting combined with other material or of two or more layers of metal; sets or assortments of gaskets and similar joints, dissimilar in composition, put up in pouches, envelopes or similar packings; mechanical seals - Other
850133	Other DC motors; DC generators, other than photovoltaic generators - of an output exceeding 75 kW but not exceeding 375 kW
850162	AC generators (alternators), other than photovoltaic generators of an output exceeding 75 kVA but not exceeding 375 kVA
850163	AC generators (alternators), other than photovoltaic generators of an output exceeding 375 kVA but not exceeding 750 kVA
850164	AC generators (alternators), other than photovoltaic generators of an output exceeding 750 kVA
850231	Generating sets, wind-powered
850239	Other generating sets - Other
850240	Electric rotary converters

CN code	Description
850433	Transformers having a power handling capacity exceeding 16 kVA but not exceeding 500 kVA
850434	Transformers having a power handling capacity exceeding 500 kVA
850520	Electromagnetic couplings, clutches and brakes
850690	Primary cells and primary batteries - Parts
850730	Electric accumulators, including separators therefor, whether or not rectangular (including square) - Nickel-cadmium
851431	Electron beam furnaces
852550	Transmission apparatus
853090	Electrical signalling, safety or traffic control equipment for railways, tramways, roads, inland waterways, parking facilities, port installations or airfields (other than those of heading 8608) - Parts
853210	Fixed capacitors designed for use in 50/60 hz circuits and having a reactive power-handling capacity of $\geq 0,5$ kvar "power capacitors"
853329	Other fixed resistors - Other
853530	Isolating switches and make-and-break switches
853590	Electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits (for example, switches, fuses, lightning arresters, voltage limiters, surge suppressors, plugs and other connectors, junction boxes), for a voltage exceeding 1 000 V - Other
853941	Arc lamps
854020	Television camera tubes; image converters and intensifiers; other photocathode tubes
854060	Other cathode ray tubes
854079	Microwave tubes (for example, magnetrons, klystrons, travelling-wave tubes, carcinotrons), excluding grid-controlled tubes - Other
854081	Receiver or amplifier valves and tubes

CN code	Description
854089	Other valves and tubes - Other
854091	Parts of cathode ray tubes
854099	Other parts
854310	Particle accelerators
854790	Insulating fittings for electrical machines, appliances or equipment, being fittings wholly of insulating material apart from any minor components of metal (for example, threaded sockets) incorporated during moulding solely for purposes of assembly, other than insulators of heading 8546; electrical conduit tubing and joints therefor, of base metal lined with insulating material - Other
860290	Other rail locomotives (excl. those powered from an external source of electricity or by accumulators and diesel-electric locomotives)
860400	Railway or tramway maintenance or service vehicles, whether or not self-propelled (for example, workshops, cranes, ballast tampers, trackliners, testing coaches and track inspection vehicles)
860692	Other railway or tramway goods vans and wagons, not self-propelled - Open, with non-removable sides of a height exceeding 60 cm
870121	Road tractors for semi-trailers - With only compression-ignition internal combustion piston engine (diesel or semi-diesel)
870122	Road tractors for semi-trailers - With both compression-ignition internal combustion piston engine (diesel or semi-diesel) and electric motor as motors for propulsion
870123	Road tractors for semi-trailers - With both spark-ignition internal combustion piston engine and electric motor as motors for propulsion
870124	Road tractors for semi-trailers - With only electric motor for propulsion
870130	Track-laying tractors (excl. pedestrian-controlled)
870410	Dumpers designed for off-highway use
870422	Other motor vehicles for the transport of goods - of a gross vehicle weight exceeding 5 tonnes but not exceeding 20 tonnes

CN code	Description
870432	Other motor vehicles for the transport of goods - of a gross vehicle weight exceeding 5 tonnes
870520	Mobile drilling derricks
870530	Fire fighting vehicles
870590	Special purpose motor vehicles, other than those principally designed for the transport of persons or goods (for example, breakdown lorries, crane lorries, fire fighting vehicles, concrete-mixer lorries, road sweeper lorries, spraying lorries, mobile workshops, mobile radiological units) - Other
870990	Works trucks, self-propelled, not fitted with lifting or handling equipment, of the type used in factories, warehouses, dock areas or airports for short distance transport of goods; tractors of the type used on railway station platforms; parts of the foregoing vehicles - Parts
871620	Self-loading or self-unloading trailers and semi-trailers for agricultural purposes
871639	Other trailers and semi-trailers for the transport of goods - Other
901010	Apparatus and equipment for automatically developing photographic (including cinematographic) film or paper in rolls or for automatically exposing developed film to rolls of photographic paper
901540	Photogrammetrical surveying instruments and appliances
901580	Other instruments and appliances
901590	Surveying (including photogrammetrical surveying), hydrographic, oceanographic, hydrological, meteorological or geophysical instruments and appliances, excluding compasses; rangefinders - Parts and accessories
902910	Revolution counters, production counters, taximeters, milometers, pedometers and the like
903120	Test benches
903281	Other automatic regulating or controlling instruments and apparatus - Hydraulic or pneumatic - Other

CN code	Description
940110	Seats for aircraft
940120	Seats for motor vehicles
940330	Wooden furniture of a kind used in offices
940610	Prefabricated buildings of wood
940690	Prefabricated buildings, whether or not complete or already assembled - Other
960630	Button moulds and other parts of buttons; button blanks
960891	Pen nibs and nib points
961220	Of man-made fibres, measuring less than 30 mm in width, permanently put in plastic or metal cartridges of a kind used in automatic typewriters, automatic data- processing equipment and other machines

List of goods and technology as referred to in Article 3k

Part C

CN code	Description
7208	flat-rolled products of iron or non-alloy steel, of a width \geq 600 mm, hot-rolled, not clad, plated or coated
7209	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, cold-rolled "cold-reduced", not clad, plated or coated
721011	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", tinned, of a thickness of \geq 0,5 mm
721012	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", tinned, of a thickness of $<$ 0,5 mm
721020	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", plated or coated with lead, incl. terne-plate
721030	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", electrolytically plated or coated with zinc
721041	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", corrugated, plated or coated with zinc (excl. electrolytically plated or coated with zinc)
721049	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", not corrugated, plated or coated with zinc (excl. electrolytically plated or coated with zinc)
721050	flat-rolled products of iron or non-alloy steel, of a width of \geq 600 mm, hot-rolled or cold-rolled "cold-reduced", plated or coated with chromium oxides or with chromium and chromium oxides

CN code	Description
721061	flat-rolled products of iron or non-alloy steel, of a width of ≥ 600 mm, hot-rolled or cold-rolled "cold-reduced", plated or coated with aluminium-zinc alloys
721069	flat-rolled products of iron or non-alloy steel, of a width of ≥ 600 mm, hot-rolled or cold-rolled "cold-reduced", plated or coated with aluminium (excl. products plated or coated with aluminium-zinc alloys)
721070	flat products of iron or non-alloy steel, of a width of ≥ 600 mm, hot-rolled or cold-rolled "cold-reduced", painted, varnished or coated with plastics
721119	flat-rolled products of iron or non-alloy steel, of a width < 600 mm, simply hot-rolled, not clad, plated or coated, of a thickness $< 4,75$ mm (excl. "wide flats")
721123	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, simply cold-rolled "cold-reduced", not clad, plated or coated, containing by weight $< 0,25$ % of carbon
721190	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced" and further worked, but not clad, plated or coated
721220	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced", electrolytically plated or coated with zinc
721230	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced", tinned (excl. electrolytically plated or coated with zinc)
721240	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced", painted, varnished or coated with plastics
721250	flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced", plated or coated (excl. tinned, plated or coated with zinc, painted, varnished or coated with plastics)

CN code	Description
7219	flat-rolled products of stainless steel, of a width of ≥ 600 mm, hot-rolled or cold-rolled "cold-reduced"
7220	flat-rolled products of stainless steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced"
722511	flat-rolled products of silicon-electrical steel, of a width of ≥ 600 mm, grain-oriented
722540	flat-rolled products of alloy steel other than stainless, of a width of ≥ 600 mm, not further worked than hot-rolled, not in coils (excl. products of silicon-electrical steel)
722550	flat-rolled products of alloy steel other than stainless, of a width of ≥ 600 mm, not further worked than cold-rolled "cold-reduced" (excl. products of silicon-electrical steel)
722591	flat-rolled products of alloy steel other than stainless, of a width of ≥ 600 mm, hot-rolled or cold-rolled "cold-reduced" and electrolytically plated or coated with zinc (excl. products of silicon-electrical steel)
722592	flat-rolled products of alloy steel other than stainless, of a width of ≥ 600 mm, hot-rolled or cold-rolled "cold-reduced" and plated or coated with zinc (excl. electrolytically plated or coated and products of silicon-electrical steel)
722611	flat-rolled products of silicon-electrical steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced", grain-oriented
722619	flat-rolled products of silicon-electrical steel, of a width of < 600 mm, hot-rolled or cold-rolled "cold-reduced", not grain-oriented
722620	flat-rolled products of high-speed steel, of a width of ≤ 600 mm, hot-rolled or cold-rolled "cold-reduced"
722692	flat-rolled products of alloy steel other than stainless, of a width of < 600 mm, not further worked than cold-rolled "cold-reduced" (excl. products of high-speed steel or silicon-electrical steel)

CN code	Description
722699	flat-rolled products of alloy steel other than stainless, of a width of < 600 mm, hot-rolled or cold-rolled “cold-reduced” and further worked (excl. products of high-speed steel or silicon-electrical steel)
7308	structures and parts of structures “e.g., bridges and bridge-sections, lock-gates, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades, pillars and columns”, of iron or steel; plates, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron or steel (excl. prefabricated buildings of heading 9406)
7310	tanks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material “other than compressed or liquefied gas”, of a capacity of ≤ 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated, n.e.s
7311	containers of iron or steel, for compressed or liquefied gas (excl. containers specifically constructed or equipped for one or more types of transport)
7610	structures and parts of structures “e.g., bridges and bridge-sections, towers, lattice masts, pillars and columns, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades”, of aluminium (excl. prefabricated buildings of heading 9406); plates, rods, profiles, tubes and the like, prepared for use in structures, of aluminium
761210	collapsible tubular containers, of aluminium
840510	producer gas or water gas generators, with or without their purifiers; acetylene gas generators and similar water process gas generators, with or without their purifiers (excl. coke ovens, electrolytic process gas generators and carbide lamps)
840681	steam and other vapour turbines, of an output > 40 mw (excl. those for marine propulsion)
840682	steam and other vapour turbines, of an output ≤ 40 mw (excl. those for marine propulsion)

CN code	Description
840721	spark-ignition outboard motors for marine propulsion
840729	spark-ignition reciprocating or rotary engines, for marine propulsion (excl. outboard motors)
8408	compression-ignition internal combustion piston engine "diesel or semi-diesel engine"
840999	parts suitable for use solely or principally with compression-ignition internal combustion piston engine "diesel or semi-diesel engine", n.e.s.
841090	parts of hydraulic turbines and water wheels incl. regulators
841311	pumps fitted or designed to be fitted with a measuring device, for dispensing fuel or lubricants, of the type used in filling stations or in garages
841319	pumps for liquids, fitted or designed to be fitted with a measuring device (excl. pumps for dispensing fuel or lubricants, of the type used in filling stations or in garages)
841330	fuel, lubricating or cooling medium pumps for internal combustion piston engine
841350	reciprocating positive displacement pumps for liquids, power-driven (excl. those of subheading 8413.11 and 8413.19, fuel, lubricating or cooling medium pumps for internal combustion piston engine and concrete pumps)
841360	rotary positive displacement pumps for liquids, power-driven (excl. those of subheading 8413.11 and 8413.19 and fuel, lubricating or cooling medium pumps for internal combustion piston engine)
841381	pumps for liquids, power-driven (excl. those of subheading 8413.11 and 8413.19, fuel, lubricating or cooling medium pumps for internal combustion piston engine, concrete pumps, general reciprocating or rotary positive displacement pumps and centrifugal pumps of all kinds)
841410	vacuum pumps
841940	distilling or rectifying plant
841950	heat-exchange units (excl. those used with boilers)

CN code	Description
841989	machinery, plant or laboratory equipment, whether or not electrically heated, for the treatment of materials by a process involving a change of temperature such as heating, cooking, roasting, sterilising, pasteurising, steaming, evaporating, vaporising, condensing or cooling, n.e.s. (excl. machinery used for domestic purposes and furnaces, ovens and other equipment of heading 8514)
841990	parts of machinery, plant and laboratory equipment, whether or not electrically heated, for the treatment of materials by a process involving a change of temperature, and of non-electric instantaneous and storage water heaters, n.e.s.
842111	centrifugal cream separators
842123	oil or petrol-filters for internal combustion engines
842129	machinery and apparatus for filtering or purifying liquids (excl. such machinery and apparatus for water and other beverages, oil or petrol-filters for internal combustion engines and artificial kidneys)
842131	intake air filters for internal combustion engines
842139	machinery and apparatus for filtering or purifying gases (excl. isotope separators and intake air filters for internal combustion engines)
842199	parts of machinery and apparatus for filtering or purifying liquids or gases, n.e.s.
842489	mechanical appliances, whether or not hand-operated, for projecting, dispersing or spraying liquids or powders, n.e.s.
842490	parts of fire extinguishers, spray guns and similar appliances, steam or sand blasting machines and similar jet projecting machines and machinery and apparatus for projecting, dispersing or spraying liquids or powders, n.e.s.
842531	winches and capstans powered by electric motor
842611	overhead travelling cranes on fixed support
842619	overhead travelling cranes, transporter cranes, gantry cranes, bridge cranes and mobile lifting frames (excl. overhead travelling cranes on fixed support, mobile lifting frames on tyres, straddle carriers and portal or pedestal jib cranes)

CN code	Description
842620	tower cranes
842630	portal or pedestal jib cranes
842641	mobile cranes and works trucks fitted with a crane, self-propelled, on tyres (excl. wheel-mounted cranes, mobile lifting frames on tyres and straddle carriers)
842649	mobile cranes and works trucks fitted with a crane, self-propelled (excl. those on tyres and straddle carriers)
842691	cranes designed for mounting on road vehicles
8427	fork-lift trucks; other works trucks fitted with lifting or handling equipment (excl. straddle carriers and works trucks fitted with a crane)
842831	continuous-action elevators and conveyors for goods or materials, for underground use (excl. pneumatic elevators and conveyors)
842839	continuous-action elevators and conveyors, for goods or materials (excl. those for underground use and bucket, belt or pneumatic types)
842870	industrial robots
842911	self-propelled bulldozers and angledozers, track laying
842920	self-propelled graders and levellers
842930	self-propelled scrapers
842940	self-propelled tamping machines and roadrollers
842951	self-propelled front-end shovel loaders
842952	self-propelled mechanical shovels, excavators and shovel loaders, with a 360° revolving superstructure
843050	self-propelled earth-moving machinery, n.e.s.
843069	earth moving machinery, not self-propelled, n.e.s.

CN code	Description
843120	parts of fork-lift trucks and other works trucks fitted with lifting or handling equipment, n.e.s.
843139	parts of machinery of heading 8428, n.e.s.
843141	buckets, shovels, grabs and grips for machinery of heading 8426, 8429 and 8430
843149	parts of machinery of heading 8426, 8429 and 8430, n.e.s.
844319	printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442 (excl. hectograph or stencil duplicating machines, addressing machines and other office printing machines of heading 8469 to 8472, ink jet printing machines and offset, flexographic, letterpress and gravure printing machinery)
845420	ingot moulds and ladles, of a kind used in metallurgy or in metal foundries
845490	parts of converters, ladles, ingot moulds and casting machines of a kind used in metallurgy or in metal foundries, n.e.s.
845522	cold-rolling mills for metal (excl. tube mills)
845530	rolls for metal-rolling mills
845620	machine tools for working any material by removal of material, operated by ultrasonic processes (excl. cleaning apparatus operated by ultrasonic processes and material testing machines)
845640	machine tools for working any material by removal of material, operated by plasma arc processes
845710	machining centres for working metal
845730	multi-station transfer machines for working metal
8458	lathes (including turning centres) for removing metal
845921	drilling machines for working metal, numerically controlled (excl. way-type unit head machines)

CN code	Description
845931	boring-milling machines for metals, numerically controlled (excl. way-type unit head machines)
845941	boring machines for metals, numerically controlled (excl. way-type unit head machines and boring-milling machines)
845949	boring machines for metals, not numerically controlled (excl. way-type unit head machines and boring-milling machines)
845961	milling machines for metals, numerically controlled (excl. way-type unit head machines, boring-milling machines, knee-type milling machines and gear cutting machines)
8460	machine tools for deburring, sharpening, grinding, honing, lapping, polishing or otherwise finishing metal or cermets by means of grinding stones, abrasives or polishing products (excl. gear cutting, gear grinding or gear finishing machines of heading 8461 and machines for working in the hand)
8462	machine tools (including presses) for working metal by forging, hammering or die forging (excluding rolling mills); machine tools (including presses, slitting lines and cut-to-length lines) for working metal by bending, folding, straightening, flattening, shearing, punching, notching or nibbling (excluding draw-benches); presses for working metal or metal carbides, not specified in previous headings
8463	machine tools for working metal, sintered metal carbides or cermets, without removing material (excl. forging, bending, folding, straightening and flattening presses, shearing machines, punching or notching machines, presses and machines for working in the hand)
8464	machine tools for working stone, ceramics, concrete, asbestos-cement or like mineral materials or for cold-working glass (excl. machines for working in the hand)
846596	splitting, slicing or paring machines, for working wood (excl. machining centres)

CN code	Description
846620	work holders for machine tools
846693	parts and accessories for machine tools for working material by removing material of headings 8456 to 8461, n.e.s.
846694	parts and accessories for machine tools for working metal without removing material, n.e.s.
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; parts thereof
847431	concrete or mortar mixers (excl. those mounted on railway wagons or lorry chassis)
847730	blow-moulding machines for working rubber or plastics
847981	machinery for treating metal, incl. electric wire coil-winders, n.e.s. (excl. industrial robots, furnaces, dryers, spray guns and the like, high-pressure cleaning equipment and other jet cleaners, rolling mills or machines, machine tools and rope or cable-making machines)
847982	mixing, kneading, crushing, grinding, screening, sifting, homogenising, emulsifying or stirring machines, n.e.s. (excl. industrial robots)
847989	machines and mechanical appliances, n.e.s.
848130	check "non-return" valves for pipes, boiler shells, tanks, vats or the like
848210	ball bearings
848230	spherical roller bearings
848250	cylindrical roller bearings (excl. needle roller bearings)
848280	roller bearings, incl. combined ball-roller bearings (excl. ball bearings, tapered roller bearings, incl. cone and tapered roller assemblies, spherical roller bearings, needle and cylindrical roller bearings)

CN code	Description
8483	transmission shafts, incl. camshafts and crankshafts, and cranks; bearing housings and plain shaft bearings for machines; gears and gearing; ball or roller screws, gear boxes and other speed changers, incl. torque converters; flywheels and pulleys, incl. pulley blocks, clutches and shaft couplings, incl. universal joints; parts thereof
8486	machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays; machines and apparatus specified in note 9 c to chapter 84; parts and accessories, n.e.s.
8487	machinery parts, not containing electrical connectors, insulators, coils, contacts or other electrical features, not specified or included elsewhere in chapter 84
850120	universal ac-dc motors of an output > 37,5 w
850131	dc motors of an output > 37,5 w but <= 750 w and dc generators of an output <= 750 w
850153	ac motors, multi-phase, of an output > 75 kw
850161	ac generators "alternators", of an output <= 75 kva
850211	generating sets with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of an output <= 75 kva
850212	generating sets with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of an output > 75 kva but <= 375 kva
850213	generating sets with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of an output > 375 kva
850300	Parts suitable for use solely or principally with the machines of heading 8501 or 8502:
850432	transformers, having a power handling capacity > 1 kva but <= 16 kva (excl. liquid dielectric transformers)

CN code	Description
850590	electromagnets and electromagnetic lifting heads, and their parts (excl. magnets for medical use); electromagnetic or permanent magnet chucks, clamps and similar holding devices and their parts, n.e.s.
850660	air-zinc cells and batteries (excl. spent)
850710	lead-acid accumulators of a kind used for starting piston engine "starter batteries" (excl. spent)
850720	lead acid accumulators (excl. spent and starter batteries)
8511	electrical ignition or starting equipment of a kind used for spark-ignition or compression-ignition internal combustion engines, e.g. ignition magnetos, magneto-dynamos, ignition coils, sparking plugs, glow plugs and starter motors; generators, e.g. dynamos and alternators, and cut-outs of a kind used in conjunction with such engines; parts thereof
851220	electrical lighting or visual signalling equipment for motor vehicles (excl. lamps of heading 8539)
851290	parts of electrical lighting or signalling equipment, windscreen wipers, defrosters and demisters of a kind used for cycles and motor vehicles, n.e.s.
851411	hot isostatic presses
85141980	resistance heated industrial or laboratory furnaces and ovens (excluding bakery and biscuit ovens and hot isostatic presses)
851420	furnaces and ovens functioning by induction or dielectric loss
851490	parts of electric industrial or laboratory furnaces and ovens, incl. of those functioning by induction or dielectric loss, and of industrial or laboratory equipment for the heat treatment of materials by induction or dielectric loss, n.e.s. (other than for the manufacture of semiconductor devices on semiconductor wafers)
851521	fully or partly automatic machines for resistance welding of metals

CN code	Description
851529	machines for resistance welding of metals, neither fully nor partly automatic
851680	electric heating resistors (excl. those of agglomerated coal and graphite)
852581	High-speed television cameras, digital cameras and video camera recorders as specified in subheading note 1 to chapter 85.
852582	Radiation-hardened or radiation-tolerant television cameras, digital cameras and video camera recorders as specified in subheading note 2 to chapter 85
852583	Night vision television cameras, digital cameras and video camera recorders as specified in subheading note 3 to chapter 85
852610	radar apparatus
852721	radio-broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles, combined with sound recording or reproducing apparatus
852849	cathode-ray tube monitors "crt" (excl. computer monitors, with tv receiver)
853010	electrical signalling, safety or traffic control equipment for railways or tramways (excl. mechanical or electromechanical equipment of heading 8608)
853080	electrical signalling, safety or traffic control equipment (excl. that for railways or tramways and mechanical or electromechanical equipment of heading 8608)
853229	fixed electrical capacitors (excl. tantalum, aluminium electrolytic, ceramic, paper, plastic and power capacitors)
853230	variable or adjustable "pre-set" electrical capacitors
853290	parts of electrical "pre-set" capacitors, fixed, variable or adjustable, n.e.s.
853390	parts of electrical resistors, incl. rheostats and potentiometers, n.e.s.
853510	fuses for a voltage > 1 000 v
853521	automatic circuit breakers for a voltage > 1 000 v but < 72,5 kv
853529	automatic circuit breakers for a voltage >= 72,5 kv

CN code	Description
853540	lightning arresters, voltage limiters and surge suppressors, for a voltage > 1 000 v
853810	boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus
853890	parts suitable for use solely or principally with the apparatus of heading 8535, 8536 or 8537, n.e.s. (excl. boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus)
853929	filament lamps, electric (excl. tungsten halogen lamps, lamps of a power <= 200 w and for a voltage > 100 v and ultraviolet or infra-red lamps)
853939	discharge lamps (excl. hot-cathode fluorescent lamps, mercury or sodium vapour lamps, metal halide lamps and ultraviolet lamps)
853951	Light-emitting diode (LED) modules
853952	Light-emitting diode (LED) lamps
854071	magnetrons
854130	thyristors, diacs and triacs (excl. photosensitive semiconductor devices)
854141	Light-emitting diodes (LED)
854142	Photovoltaic cells not assembled in modules or made up into panels
854143	Photovoltaic cells assembled in modules or made up into panels
854320	signal generators, electrical
854330	machines and apparatus for electroplating, electrolysis or electrophoresis
854411	winding wire for electrical purposes, of copper, insulated
854430	ignition wiring sets and other wiring sets for vehicles, aircraft or ships
854449	electric conductors, for a voltage <= 1 000 v, insulated, not fitted with connectors, n.e.s.

CN code	Description
854460	electric conductors, for a voltage > 1 000 v, insulated, n.e.s.
854470	optical fibre cables made up of individually sheathed fibres, whether or not containing electric conductors or fitted with connectors
854520	carbon brushes for electrical purposes
854710	insulating fittings for electrical purposes, of ceramics
854720	insulating fittings for electrical purposes, of plastics
8549	electrical and electronic waste and scrap
870310	vehicles for the transport of <10 persons on snow; golf cars and similar vehicles
870423	motor vehicles for the transport of goods, with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of a gross vehicle weight > 20 t (excl. dumpers for off-highway use of subheading 8704.10 and special purpose motor vehicles of heading 8705)
870510	crane lorries (excl. breakdown lorries)
870540	concrete-mixer lorries
871639	trailers and semi-trailers for the transport of goods, not designed for running on rails (excl. self-loading or self-unloading trailers and semi-trailers for agricultural purposes and tanker trailers and tanker semi-trailers)
871690	parts of trailers and semi-trailers and other vehicles not mechanically propelled, n.e.s.
900110	optical fibres, optical fibre bundles and cables (excl. made up of individually sheathed fibres of heading 8544)
9005	binoculars, monoculars, other optical telescopes, and mountings therefor; other astronomical instruments and mountings therefor (excl. instruments for radio-astronomy and other instruments or apparatus specified elsewhere)
9014	direction finding compasses; other navigational instruments and appliances (excl. radio navigational equipment); parts thereof

CN code	Description
901510	rangefinders
901520	theodolites and tachymeters “tacheometers”
902480	machines and appliances for testing the mechanical properties of materials (excl. metals)
902590	parts and accessories for hydrometers, areometers and similar floating instruments, thermometers, pyrometers, barometers, hygrometers and psychrometers, n.e.s.
902710	gas or smoke analysis apparatus
902781	mass spectrometers
902789	instruments and apparatus for physical or chemical analysis, or for measuring or checking viscosity, porosity, expansion, surface tension or the like, or for measuring or checking quantities of heat, sound or light, n.e.s. (excluding mass spectrometers)
902920	speed indicators and tachometers, stroboscopes
902990	parts and accessories for revolution counters, production counters, taximeters, milometers, pedometers and the like, speed indicators and tachometers, and stroboscopes, n.e.s.
903032	multimeters with recording device
903039	instruments and apparatus for measuring or checking voltage, current, resistance or electrical power, with recording device (excl. multimeters, and oscilloscopes and oscillographs)
903040	instruments and apparatus for measuring or checking electrical quantities, specifically for telecommunications, e.g. cross-talk meters, gain measuring instruments, distortion factor meters, psophometers
903082	instruments and apparatus for measuring or checking semiconductor wafers or devices
903089	instruments and apparatus for measuring or checking electrical quantities, without recording device, n.e.s.
Ex 98	complete industrial plants, except plants for the production of food and drinks, pharmaceuticals, medicines and medical devices