

SCHEDULE 1

Regulation 12(3)

Insertion of Parts 1A and 1B into Schedule 2A

“PART 1A

Special materials and related equipment

**Microorganisms and Toxins**

<i>Item</i>	<i>Regulation 53A applies?</i>
1B999 Specific processing equipment as follows:	
a. Electrolytic cells for fluorine “production”;	
b. Particle accelerators;	
c. Industrial process control hardware/systems designed for power industries;	
d. Freon and chilled water-cooling systems capable of continuous cooling duties of 100,000 BTU/hr (29.3 kW) or greater;	
e. Equipment for the “production” of structural composites, fibres, prepregs and preforms.	
1C990 Fibrous and filamentary materials 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.	Yes
1C992 Commercial charges and devices containing energetic materials, and nitrogen trifluoride in a gaseous state.	Yes
<i>Note: For the purposes of this entry the mass of the non-controlled substance in any ‘mixture’ is omitted when determining the total mass of the controlled material.</i>	
These items are as follows:	Yes
a. Shaped charges specially designed for oil well operations, utilising one charge functioning along a single axis, that upon detonation produce a hole, and	
a.1. Contain any formulation of controlled materials;	
a.2. Have only a uniform shaped conical liner with an included angle of 90 degrees or less;	
a.3. Contain more than 0.010 kg but less than or equal to 0.090 kg of “controlled materials”; and	
a.4. Have a diameter not exceeding 4.5 inches;	
b. Shaped charges specially designed for oil well operations containing less than or equal to 0.010 kg of controlled materials;	Yes

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Item	Regulation 53A applies?
c. Detonation cord or shock tubes containing less than or equal to 0.064 kg per meter (300 grains per foot) of controlled materials;	Yes
d. Cartridge power devices, that contain less than or equal to 0.70 kg of controlled materials in the deflagration material;	Yes
e. Oil well cartridges, that contain less than or equal to 0.015 kg of “controlled materials”;	Yes
f. Commercial prefabricated slurries and emulsions containing less than or equal to 10.0 kg and less than or equal to thirty-five percent by weight of materials controlled by ML8 in Schedule 2 of the Export Control Order 2008;	Yes
g. Cutters and severing tools containing less than or equal to 3.5 kg of controlled materials;	Yes
h. 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;	Yes
i. Other commercial explosive devices and charges not controlled by 1C992.a to.h. containing less than or equal to 1.0 kg of controlled materials.  <i>Note: 1C992.i 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.</i>	Yes
j. Nitrogen trifluoride (NF <sub>3</sub> ) in a gaseous state - Nitrogen trifluoride (CAS RN 7783-54-2)	
1C996 Hydraulic fluids containing synthetic hydrocarbon oils, having all the following characteristics:  a. A flash point exceeding 477 K (204 degrees C);  b. A pour point at 239 K ( -34 degrees C) or less;  c. A viscosity index of 75 or more; and  d. A thermal stability at 616 K (343 degrees C).	Yes
1C997 Ammonium nitrate, including fertilisers and fertiliser blends containing more than 15% by weight ammonium nitrate, except liquid fertilisers (containing any amount of ammonium nitrate) or dry fertilisers containing less than 15% by weight ammonium nitrate	
1C998 Non fluorinated polymeric substances as follows:  a. Polyarylene ether ketones, as follows:  a.1 Polyether ether ketone (PEEK);  a.2. Polyether ketone ketone (PEKK);	Yes

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<i>Item</i>	<i>Regulation 53A applies?</i>
a.3. Polyether ketone (PEK);	
a.4. Polyether ketone ether ketone ketone (PEKEKK);	
1C999 Specific materials, as follows:	
a. Hardened steel and tungsten carbide precision ball bearings (3mm or greater diameter);	Yes
b. 304 and 316 stainless steel plate;	
c. Monel plate;	
d. Tributyl phosphate;	
e. Nitric acid in concentrations of 20 weight percent or greater;	
f. Fluorine;	
g. Alpha emitting radionuclides,	
1D999 Specific software as follows:	
a. "Software" specially designed for industrial process control hardware/systems controlled by 1B999;	
b. "Software" specially designed for equipment for the "production" of structural composites, fibres, prepregs and preforms controlled by 1B999.	
1E994 "Technology" for the "development", "production", or "use" of fibrous and filamentary materials controlled by 1C990.	Yes

## PART 1B

### MATERIALS PROCESSING

<i>Item</i>	<i>Regulation 53A applies?</i>
<p>2A983 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 as follows and specifically designed components thereof:</p> <p><i>Note: For the purpose of this entry, 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. This entry does not control equipment that depends on operator interpretation of indicators such as inorganic/organic colour mapping of the items(s) being scanned.</i></p>	

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Item	Regulation 53A applies?
<p><i>Note: Explosives or detonation detection equipment in 2A983 includes equipment for screening people, documents, baggage, other personal effects, cargo and/or mail.</i></p>	
<p>a. Explosives detection equipment for automated decision making to detect and identify bulk explosives utilising, 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).</p>	Yes
<p>b. Detonator detection equipment for automated decision making to detect and identify initiation devices (e.g. detonators, blasting caps) utilising, but not limited to, x-ray (e.g. dual energy or computed tomography) or electromagnetic techniques.</p>	Yes
<p>2A984 Concealed object detection equipment operating in the frequency range from 30 GHz to 3000 GHz and having a spatial resolution of 0.1 milliradian up to and including 1 milliradian at a standoff distance of 100 metres; and specially designed components thereof.</p> <p><i>Note: Concealed object detection equipment includes but is not limited to equipment for screening people, documents, baggage, other personal effects, cargo and mail.</i></p> <p><i>Technical Note: The range of frequencies span what is generally considered as the millimetre-wave, submillimetre-wave and terahertz frequency regions.</i></p>	Yes
<p>2A991 Bearings and bearing systems as follows:</p>	
<p><i>This entry does not control balls with tolerance specified by the manufacturer in accordance with ISO 3290 as grade 5 or worse.</i></p> <p><i>Note (1) (a) DN is the product of the bearing bore diameter in mm and the bearing rotational velocity in rpm.</i></p> <p><i>(b) Operating temperatures include those temperatures obtained when a gas turbine engine has stopped after operation.</i></p> <p><i>(2) Annular Bearing Engineers Committee (ABEC); American National Standards Institute (ANSI); Anti-Friction Bearing Manufacturers Association (AFBMA).</i></p>	
<p>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.</p>	Yes
<p>a.1. Manufactured for “use” at operating temperatures above 573 K (300 degrees C) either by using special materials or by special heat treatment; or</p>	
<p>a.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.</p>	

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Item	Regulation 53A applies?
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 any of the following characteristics.	
b.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  b.2. Manufactured for “use” at operating temperatures below 219 K (54 degrees C) or above 423 K (150 degrees 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.	Yes
e. Fabric-lined self-aligning or fabric-lined journal sliding bearings manufactured for “use” at operating temperatures below 219 K(-54 degrees C) or above 423 K (150 degrees C).	
2A992 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 as follows:	
a. Pressure tube, pipe, and fittings of 200 mm (8 in.) or more inside diameter, and suitable for operation at pressures of 3.4 MPa (500 psi) or greater;	
b. Pipe valves having all of the following characteristics that are not controlled by 2B350.g of Annex I of the Dual-Use Regulation;  b.1. A pipe size connection of 200 mm (8 in.) or more inside diameter; and  b.2. Rated at 10.3 MPa (1,500 psi) or more.	
2A993 Pumps designed to move molten metals by electromagnetic forces.	
2A994 Portable electric generators, weighing 2300 kg or less on wheels or transportable in a 2½ ton truck without a special set up requirement and specially designed components thereof.	
2A999 Specific processing equipment as follows:	
a. Bellows sealed valves;	
<i>TECHNICAL NOTES FOR 2B991 TO 2B999:</i>	
<i>1. Secondary parallel contouring axes, (e.g., the w-axis on horizontal boring mills or a secondary rotary axis the centre line of which is parallel to the primary rotary axis) are not counted in the total number of contouring axes. Rotary axes need not rotate over 360°. A rotary axis can be driven by a linear device (e.g., a screw or a rack-and-pinion).</i>	
<i>2. The number of axes which can be coordinated simultaneously for “contouring control” is the number of axes along or around which, during processing of the workpiece, simultaneous and interrelated motions are performed between the</i>	

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Item	Regulation 53A applies?
workpiece and a tool. This does not include any additional axes along or around which other relative motions within the machine are performed, such as:	
2.a. Wheel-dressing systems in grinding machines;	Yes
2.b. Parallel rotary axes designed for mounting of separate workpieces;	
2.c. Co-linear rotary axes designed for manipulating the same workpiece by holding it in a chuck from different ends.	
3. Axis nomenclature shall be in accordance with International Standard ISO 841:2001, Industrial automation systems and integration - Numerical control of machines - Coordinate system and motion nomenclature.	Yes
4. A “tilting spindle” is counted as a rotary axis.	Yes
5. ‘Stated “unidirectional positioning repeatability”’ may be used for each specific machine model as an alternative to individual machine tests, and is determined as follows:	Yes
5.a. Select five machines of a model to be evaluated;	Yes
5.b. Measure the linear axis repeatability ( $R_{\uparrow}, R_{\downarrow}$ ) according to ISO 230-2:2014 and evaluate “unidirectional positioning repeatability” for each axis of each of the five machines;	Yes
5.c. Determine the arithmetic mean value of the “unidirectional positioning repeatability”-values for each axis of all five machines together. These arithmetic mean values “unidirectional positioning repeatability” ( ) become the stated value of each axis for the model...( x, y, ...);	Yes
5.d. Since the Category 2 list refers to each linear axis there will be as many ‘stated “unidirectional positioning repeatability”’ values as there are linear axes;	Yes
5.e. If any axis of a machine model not controlled by 2B001.a. to 2B001.c. has a ‘stated “unidirectional positioning repeatability”’ equal to or less than the specified “unidirectional positioning repeatability” of each machine tool model plus 0.7 $\mu\text{m}$ , the builder should be required to reaffirm the accuracy level once every eighteen months.	Yes
6. For the purpose of 2B, measurement uncertainty for the “unidirectional positioning repeatability” of machine tools, as defined in the International Standard ISO 230-2:2014, shall not be considered.	Yes
7. For the purpose of 2B, the measurement of axes shall be made according to test procedures in 5.3.2. of ISO 230-2:2014. Tests for axes longer than 2 meters shall be made over 2 m segments. Axes longer than 4 m require multiple tests (e.g., two tests for axes longer than 4 m and up to 8 m, three tests for axes longer than 8 m and up to 12 m), each over 2 m segments and distributed in equal intervals over the axis length. Test segments are equally spaced along the full axis length, with any excess length equally divided at the beginning, in between, and at the end of the test segments. The smallest “unidirectional positioning repeatability”-value of all test segments is to be reported.	Yes
2B991 Numerical control units for machine tools and “numerically controlled” machine tools as follows:	

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<i>Item</i>	<i>Regulation 53A applies?</i>
a. Numerical control units for machine tools:	
a.1. Having four interpolating axes that can be coordinated simultaneously for “contouring control”; or	
a.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;	
a.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 (online) and processing computer aided design (CAD) data for internal preparation of machine instructions; or	
b. Motion control boards specially designed for machine tools and having any of the following characteristics:	
b.1. Interpolation in more than four axes;	
b.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:	
b.2.a. Automatic calculation and modification of part programme data for machining in two or more axes by means of measuring cycles and access to source data; or	
b.2.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 optimise the process.	
b.3. Capable of receiving and processing CAD data for internal preparation of machine instructions; or	
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:	
c.1. Two or more axes that can be coordinated simultaneously for contouring control; and	
c.2. Positioning accuracies according to ISO 230/2 (2006), with all compensations available:	
c.2.a. Better than 15 mm along any linear axis (overall positioning) for grinding machines;	
c.2.b. Better than 15 mm along any linear axis (overall positioning) for milling machines; or	
c.2.c. Better than 15 mm 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:	

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Item	Regulation 53A applies?
d.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:	
d.1.a. One or more contouring tilting spindles;  <i>Note: 2B991.d.1.a. applies to machine tools for grinding or milling only.</i>	
d.1.b. Camming (axial displacement) in one revolution of the spindle less (better) than 0.0006 mm total indicator reading (TIR);  <i>Note: 2B991.d.1.b. applies to machine tools for turning only.</i>	
d.1.c. Run out (out of true running) in one revolution of the spindle less (better) than 0.0006 mm total indicator reading (TIR);	
d.1.d. The positioning accuracies with all compensations available, are less (better) than: 0.001° on any rotary axis;	
d.2. Electrical discharge machines (EDM) of the wire feed type that have five or more axes that can be coordinated simultaneously for “contouring control”.	Yes
2B992 Non “numerically controlled” machine tools for generating optical quality surfaces as follows and specially designed components therefor.	
a. Turning machines using a single point cutting tool and having all of the following characteristics:	
a.1. Slide positioning accuracy less (better) than 0.0005 mm per 300 mm of travel;	
a.2. Bidirectional slide positioning repeatability less (better) than 0.00025 mm per 300 mm of travel;	
a.3. Spindle “run out” and “camming” less (better) than 0.0004 mm total indicator reading (TIR);	
a.4. Angular deviation of the slide movement (yaw, pitch and roll) less (better) than 2 seconds of arc, TIR, over full travel; and	
a.5. Slide perpendicularity less (better) than 0.001 mm per 300 mm of travel;  <i>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.</i>	
b. Fly cutting machines having all of the following characteristics:	
b.1. Spindle “run out” and “camming” less (better) than 0.0004 mm TIR; and	
b.2. Angular deviation of slide movement (yaw, pitch and roll) less (better) than 2 seconds of arc, TIR, over full travel.	
2B993 Gearmaking and/or finishing machinery capable of producing gears to a quality level of better than AGMA 11.	Yes
2B996 Dimensional inspection or measuring systems or equipment as follows.	



<i>Item</i>	<i>Regulation 53A applies?</i>
<p>a. Manual dimensional inspection machines, having both of the following characteristics:</p> <p>a.1. Two or more axes; and</p> <p>a.2. A measurement uncertainty equal to or less (better) than <math>(3 + L/300)</math> micrometre in any axes (L measured length in mm).</p>	
2B997 “Robots” 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.	
2B998 Assemblies, circuit boards or inserts as follows specially designed for machine tools controlled by 2B991, or for equipment controlled by 2B993, 2B996 or 2B997.	Yes
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);	
<p>b. Single point diamond cutting tool inserts, having all of the following characteristics:</p> <p>b.1. Flawless and chip free cutting edge when magnified 400 times in any direction;</p> <p>b.2. Cutting radius from 0.1 to 5 mm inclusive; and</p> <p>b.3. Cutting radius out of roundness less (better) than 0.002 mm TIR.</p>	
c. Specially designed printed circuit boards with mounted parts or 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 2B991, 2B993, 2B996, 2B997, or 2B998.	Yes
2B999 Specific processing equipment, as follows:	
a. Isostatic presses;	
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;	
<i>Note: Fittings are considered part of “piping” for purposes of 2B999.g.</i>	
h. Mining and drilling equipment, as follows:	

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<i>Item</i>	<i>Regulation 53A applies?</i>
h.1. Large boring equipment capable of drilling holes greater than 60cm in diameter;	
h.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;	
l. Spin forming and flow forming machines;	
m. Centrifugal multiplane balancing machines;	
n. Austenitic stainless-steel plate, valves, piping, tanks and vessels. 2D983 “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by 2A983.	
2D984 “Software” required for the “development”, “production” or “use” of concealed object detection equipment controlled by 2A984.	Yes
2D991 “Software” specially designed for the “development”, “production” or “use” of equipment controlled by 2B991, 2B993, or 2B996, 2B997, and 2B998.	Yes
2D992 Specific “software”, as follows (see List of Items Controlled).	
a.1. For flexible manufacturing units (FMUs) which consist at least of	
(1) A machine tool described in 2B001.c. of Annex I of the Dual-Use Regulation; and	
(2) A dimensional inspection machine described in Category 2 of Annex I of the Dual-Use Regulation, or another digitally controlled measuring machine controlled by an entry in Category 2 of Annex I of the Dual-Use Regulation; and	Yes
a.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:	Yes
a.2.a. Machine vision (optical ranging);	Yes
a.2.b. Infrared imaging;	Yes
a.2.c. Acoustical imaging (acoustical ranging);	Yes
a.2.d. Tactile measurement;	Yes
a.2.e. Inertial positioning;	Yes
a.2.f. Force measurement; and	Yes
a.2.g. Torque measurement.	Yes
<i>Note: 2D992.a. does not control “software” which only provides rescheduling of functionally identical equipment within “flexible manufacturing units” using prestored part programs and a prestored strategy for the distribution of the part programs.</i>	

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<i>Item</i>	<i>Regulation 53A applies?</i>
2D993 “Software” specially designed or modified for the “development”, “production” or “use” of items controlled by 2A992 or 2A993.	
2D994 “Software” specially designed for the “development” or “production” of portable electric generators controlled by 2A994.	
2E984 “Technology” required for the “development”, “production” or “use” of equipment controlled by 2A984 or required for the “development” of “software” controlled by 2D984.	Yes
2E991 “Technology” for the use of equipment controlled by 2B991, 2B993, 2B996, or 2B997.	
2E993 “Technology” according to the General Technology Note of Annex I of the Dual-Use Regulation for the “use” of equipment controlled by 2A992 or 2A993.	
2E994 “Technology” for the “use” of portable electric generators controlled by 2A994.”	

SCHEDULE 2

Regulation 12(5)

Insertion into Part 8 of Schedule 2A

**“Jet fuel and fuel additives**

Any thing falling within a commodity code mentioned in column 1 of the following table.

<i>Commodity code (1)</i>	<i>Item (2)</i>
	Jet fuel (other than kerosene):
2710 12 70	—spirit type jet fuel (light oils)
2710 19 29	—other than kerosene (medium oils)
2710 19 21	—kerosene type jet fuel (medium oils)
2710 20 90	—kerosene type jet fuel blended with biodiesel
	Oxidation inhibitors
	Oxidation inhibitors used in additives for lubricating oils:
3811 21 00	— oxidation inhibitors containing petroleum oils
3811 29 00	— other oxidation inhibitors
3811 90 00	Oxidation inhibitors used for other liquids used for the same purpose as mineral oils
	Static dissipater additives

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<i>Commodity code (1)</i>	<i>Item (2)</i>
	Static dissipater additives for lubricating oils:
3811 21 00	— containing petroleum oils
3811 29 00	— other
3811 90 00	Static dissipater additives for other liquids used for the same purpose as mineral oils
	Corrosion inhibitors
	Corrosion inhibitors for lubricating oils:
3811 21 00	— containing petroleum oils
3811 29 00	— other
3811 90 00	Corrosion inhibitors for other liquids used for the same purpose as mineral oils
	Fuel system icing inhibitors (anti-icing additives)
	Fuel system icing inhibitors for lubricating oils:
3811 21 00	— containing petroleum oils
3811 29 00	— other
3811 90 00	Fuel system icing inhibitors for other liquids used for the same purpose as mineral oils
	Metal de-activators
	Metal de-activators for lubricating oils:
3811 21 00	—containing petroleum oils
3811 29 00	— other
3811 90 00	Metal de-activator for other liquids used for the same purpose as mineral oils
	Biocide additives
	Biocide additives for lubricating oils:
3811 21 00	— containing petroleum oils
3811 29 00	— other
3811 90 00	Biocide additives for other liquids used for the same purpose as mineral oils
	Thermal stability improver additives
	Thermal stability improver for lubricating oils:
3811 21 00	— containing petroleum oils
3811 29 00	— other

<i>Commodity code (1)</i>	<i>Item (2)</i>
3811 90 00	Thermal stability improver for other liquids used for the same purposes as mineral oils <sup>(1)</sup>

SCHEDULE 3

Regulation 12(8)

Insertion of Schedules 3C and 3D

“SCHEDULE 3C

Regulation 21

DEFENCE AND SECURITY GOODS AND DEFENCE AND SECURITY TECHNOLOGY

PART 1

PRELIMINARY

**Application to non-government controlled Ukrainian territory**

1. Regulation 53A applies, subject to paragraph 2, in relation to all the goods and technology specified in Parts 2, 3 and 4.

**CAS numbers**

2.—(1) For the purposes of this Schedule “CAS Number” when followed by a numerical sequence is a reference to the CAS Registry Numbers assigned to chemicals by the Chemical Abstracts Service<sup>(1)</sup>.

(2) But regulation 53A applies to chemicals of the same structural formula (including hydrates) regardless of name or CAS Number.

PART 2

Interception and monitoring goods and interception and monitoring technology

**Interception and monitoring equipment**

1. This Part applies to any goods which can perform any of the following functions (whether individually or as part of a system)—

- (a) deep packet inspection;
- (b) network interception, including associated systems management and data retention functions;
- (c) radio frequency monitoring, including associated processing or examination;
- (d) network and satellite jamming;
- (e) remote infection;
- (f) speaker recognition, including associated processing functions;

<sup>(1)</sup> <https://www.cas.org/cas-data/cas-registry>.

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- (g) IMSI, MSISDN, IMEI and TMSI interception and monitoring;
  - (h) tactical SMS, GSM, GPS, GPRS, UMTS, CDMA, and PSTN interception and monitoring;
  - (i) DHCP, SMTP and GTP information interception and monitoring;
  - (j) pattern recognition and pattern profiling;
  - (k) remote forensics;
  - (l) semantic processing;
  - (m) WEP and WPA code breaking;
  - (n) interception of VoIP (including proprietary and standard protocols).
2. Any software which can perform any of the functions described in paragraph 1(a) to (n) (whether individually or as part of a system).

**Other software and other technology**

3. Any software or other technology which is specially designed for the development, production or use of any goods or software described in paragraph 1 or 2.

**Interpretation**

4. For the purposes of this Part, the following terms have the meaning given to them in the Dual-Use Regulation—
- “development”;
  - “production”;
  - “software”;
  - “technology”;
  - “use”.

**PART 3**

**Internal repression goods and internal repression technology**

**Firearms and related goods**

1. Firearms, ammunition and related accessories, as follows—
- (a) firearms;
  - (b) ammunition specially designed for firearms;
  - (c) weapon-sights.
2. Simulators for training persons to use firearms.
3. Bombs and grenades.

**Vehicles**

- 4.—(1) Subject to sub-paragraph (3), the following types of vehicles—
- (a) vehicles equipped with a water cannon, specially designed or modified for the purpose of riot control;
  - (b) vehicles specially designed or modified to be electrified to repel boarders;

- (c) vehicles specially designed or modified to remove barricades, including construction equipment with ballistic protection;
  - (d) vehicles specially designed for the transport or transfer of prisoners or detainees;
  - (e) vehicles specially designed to deploy mobile barriers.
- (2) Components for the vehicles specified in sub-paragraphs (1)(a) to (e) that have been designed for the purposes of riot control.
- (3) Vehicles that might otherwise fall within sub-paragraph (1)(a) to (e) are not internal repression goods if they are specially designed for the purposes of fire-fighting.
- (4) For the purposes of this paragraph, “vehicle” includes a trailer.

#### **Explosive substances and related goods**

- 5.—(1) Equipment and devices specially designed to initiate explosions by electrical or non-electrical means, including—
- (a) firing sets;
  - (b) detonators; (codes for electric detonators and detonating caps);
  - (c) igniters;
  - (d) boosters;
  - (e) detonating cord.
- (2) Components that have been specially designed for any thing mentioned in sub-paragraph (1).
- (3) Sub-paragraphs (1) and (2) do not apply to any thing that has been specially designed for a specific commercial use.
- (4) For the purpose of sub-paragraph (3), a “specific commercial use” means the actuation or operation by explosive means of other equipment or devices the function of which is not the creation of explosions, including—
- (a) car air-bag inflaters;
  - (b) electric-surge arresters;
  - (c) fire sprinkler actuators.
- (5) Linear cutting explosive charges.
- (6) The following explosives and related substances—
- (a) amatol;
  - (b) nitrocellulose (containing more than 12.5 % nitrogen);
  - (c) nitroglycol;
  - (d) pentaerythritol tetranitrate (PETN);
  - (e) picryl chloride;
  - (f) 2,4,6-trinitrotoluene (TNT).

#### **Other goods**

- 6.—(1) Subject to sub-paragraph (2), the following equipment designed for the protection of a person—
- (a) body armour providing ballistic or stabbing protection or both;
  - (b) helmets providing ballistic or fragmentation protection, or both, including anti-riot helmets;

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- (c) anti-riot shields and ballistic shields.
- (2) Sub-paragraph (1) does not apply to—
  - (a) any thing specially designed to protect persons for the following purposes—
    - (i) participation in competitive sport;
    - (ii) ensuring safety at work;
  - (b) any thing mentioned in sub-paragraph (1)(a) or (b) when accompanying a person for that person's own protection.
- 7. Night vision equipment.
- 8. Thermal imaging equipment.
- 9. Image intensifier tubes.
- 10. Razor barbed wire.
- 11. The following types of knives—
  - (a) knives that are designed for use by military personnel (military knives);
  - (b) knives that are designed for use as a weapon for inflicting injury (combat knives);
  - (c) bayonets with blade lengths in excess of 10 cm.
- 12. Law enforcement striking weapons, including saps, police batons, side handle batons, tonfas, sjamboks, and whips.
- 13.—(1) Handcuffs, straitjackets and specially designed components and accessories.
  - (2) Sub-paragraph (1) does not apply to—
    - (a) medical devices that are equipped to restrain patient movement during medical procedures;
    - (b) devices which confine memory impaired patients to appropriate medical facilities.
- 14. Technology exclusively for the development or production of equipment controlled by paragraph 15.
- 15. Chemical agents, including tear gas formulation containing 1 per cent. or less of orthochlorobenzalmalononitrile (CS), or 1 per cent. or less of chloroacetophenone (CN), except in individual containers with a net weight of 20 grams or less; liquid pepper except when packaged in individual containers with a net weight of 3 ounces (85.05 grams) or less; smoke bombs; non-irritant smoke flares, canisters, grenades and charges; and other pyrotechnic articles having dual military and commercial use, and specially designed components thereof.
- 16. Fingerprinting powders, dyes, and inks.

#### **Production equipment**

- 17. Any equipment which is specially designed or modified for the development or for one or more of the production phases of any item mentioned in paragraphs 1 to 13 of this Part.

#### **Software and technology**

- 18. Any software which is specially designed for the simulators mentioned in paragraph 2.
- 19. Any technology which is specially designed for the development, production or use of any item mentioned in paragraphs 1 to 11.



**Interpretation**

**20.**—(1) In this Part, “firearm” means any portable barrelled weapon that expels, is designed to expel or may be converted to expel, a shot, bullet or projectile by the action of a combustible propellant.

(2) For the purposes of this Schedule, the following terms have the meaning given to them in Annex I of the Dual-Use Regulation—

“development”;

“production”;

“software”;

“technology”;

“use”.

**PART 4****Chemicals and equipment****Chemicals**

<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Aluminium chloride	(7446-70-0)	
Dichloromethane	(75-09-2)	
N,N-Dimethylaniline	(121-69-7)	
Isopropyl bromide	(75-26-3)	
Isopropyl ether	(108-20-3)	
Monoisopropylamine	(75-31-0)	
Potassium Bromide	(7758-02-3)	
Pyridine	(110-86-1)	
Sodium bromide	(7647-15-6)	
Sodium metal	(7440-23-5)	
Tributylamine	(102-82-9)	
Triethylamine	(121-44-8)	
Trimethylamine	(75-50-3)	
Diethylenetriamine	(111-40-0)	
Butyrylcholinesterase (BCHE)	Not Applicable	Yes
Pyridostigmine bromide	(101-26-8)	
Obidoxime chloride	(114-90-9)	
Acetylene	(CAS 74-86-2)	
Acetone	(CAS 67-64-1)	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Antimony	(CAS 7440-36-0)	
Arsenic	(CAS 7440-38-2)	
Arsenic trioxide	(CAS 1327-53-3)	
Bis(2-chloroethyl)ethylamine hydrochloride	(CAS 3590-07-6)	
Bis(2-chloroethyl)methylamine hydrochloride	(CAS 55-86-7)	
Benzil	(CAS 134-81-6)	
Benzaldehyde	(CAS 100-52-7)	
Benzoin	(CAS 119-53-9)	
2-bromochloroethane	(CAS 107-04-0)	
Chlorine	(CAS 7782-50-5)	
Diethyl ether	(CAS 60-29-7)	
Dimethyl ether	(CAS 115-10-6)	
Dimethylaminoethanol	(CAS 108-01-0)	
Dicyclohexylamine (DCA)	(CAS 101-83-7)	
Ethylene	(CAS 74-85-1)	
Ethylene dichloride	(CAS 107-06-2)	
2-methoxyethanol	(CAS 109-86-4)	
Ethyl bromide	(CAS 74-96-4)	
Ethyl chloride	(CAS 75-00-3)	
Ethylamine	(CAS 75-04-7)	
Ethylene oxide	(CAS 75-21-8)	
Fluorapatite	(CAS 1306-05-4)	
Hexamine	(CAS 100-97-0)	Yes
Hydrogen sulfide	(CAS 7783-06-4)	
Isocyanatomethane	(CAS 624-83-9)	
Isopropanol, 95% concentration or greater	(CAS 67-63-0)	
Mandelic acid	(CAS 90-64-2)	
Methylamine	(CAS 74-89-5)	
Methyl bromide	(CAS 74-83-9)	
Methyl chloride	(CAS 74-87-3)	
Methyl iodide	(CAS 74-88-4)	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Methylmercaptan	(CAS 74-93-1)	
Monoethylene Glycol (MEG)	(CAS 107-21-1)	
Nitromethane	(CAS 75-52-5)	
Oxalyl chloride	(CAS 79-37-8)	
Picric acid	(CAS 88-89-1)	
Potassium sulfide	(CAS 1312-73-8)	
Potassium thiocyanate	(CAS 333-20-0)	
Quinaldine	(CAS 91-63-4)	
Thiophosphoryl chloride	(CAS 3982-91-0)	
Tributylphosphite	(CAS 102-85-2)	
Triisobutylphosphite	(CAS 1606-96-8)	
Tris(2-chloroethyl)amine hydrochloride	(CAS 817-09-4)	
Sodium hypochlorite	(CAS 7681-52-9)	
Sulfur trioxide	(CAS 7446-11-9)	
White/yellow phosphorus	(CAS 12185-10-3, 7723-14-0)	
Mercury	(7439#97#6)	
Barium chloride	(10361#37#2)	
Sulphuric acid, with a concentration by weight of 90% or greater	(7664#93#9)	
3,3#dimethyl#1#butene	(558#37#2)	
2,2#dimethylpropanal	(630#19#3)	
2,2#dimethylpropylchloride	(753#89#9)	
2#methylbutene	(26760#64#5)	
2#chloro#3#methylbutane	(631#65#2)	
2,3#dimethyl#2,3#butanediol	(76#09#5)	
2#methyl#2#butene	(513#35#9)	
Butyl lithium	(109#72#8)	
Bromo(methyl)magnesium	(75#16#1)	
Formaldehyde	(50#00#0)	
Diethanolamine	(111#42#2)	
Dimethylcarbonate	(616#38#6)	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Methyldiethanolamine hydrochloride	(54060#15#0)	
Methanol	(67#56#1)	
Ethanol	(64#17#5)	Yes
1#butanol	(71#36#3)	
2#butanol	(78#92#2)	
Iso#butanol	(78#83#1)	
Tert#butanol	(75#65#0)	
Cyclohexanol	(108#93#0)	
Diethylamine hydrochloride	(660#68#4)	
Diisopropylamine hydrochloride	(819#79#4)	
3#Quinuclidinone hydrochloride	(1193#65#3)	
3#Quinuclidinol hydrochloride	(6238#13#7)	
(R)#3# Quinuclidinol hydrochloride	(42437#96#7)	
N,N#Diethylaminoethanol hydrochloride	(14426#20#1)	
Acetyl-alpha-methylfentanyl	101860-00-8	
Alfentanil	71195-58-9	
Alpha-methylfentanyl	79704-88-4	
Alpha-methylthiofentanyl	103963-66-2	
Beta-hydroxyfentanyl	78995-10-5	
Beta-hydroxy-3-methylfentanyl	78995-14-9	
Fentanyl	437-38-7	
3-methylfentanyl	42045-86-3	
3-methylthiofentanyl	86052-04-2	
Para-fluorofentanyl	90736-23-5	
Remifentanil	132875-61-7	
Sufentanil	56030-54-7	
Thiofentanyl	60771-38-2	
Acryloylfentanyl (Acrylfentanyl)	82003-75-6	
Carfentanil	59708-52-0	
4-Fluoroisobutyrfentanyl (4-FIBF, pFIBF)	244195-32-2	
Furanyl fentanyl	101345-66-8	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Ocfentanil	101343-69-5	
Tetrahydrofuranyl fentanyl (THF-F)	2142571-01-3	
Cyclopropylfentanyl	1169-68-2	
Methoxyacetylfentanyl	101345-67-9	
Orthofluorofentanyl	910616-29-4	
Parafluorobutyrylfentanyl	244195-31-1	
Crotonylfentanyl	760930-59-4	
Valeryl fentanyl	122882-90-0	
4-Anilino-N-phenethylpiperidine (ANPP)	21409-26-7	
N-Phenethyl-4-piperidone (NPP)	39742-60-4	
Dialkyl( $\leq$ C10) chlorophosphates	N/A	
Dialkyl( $\leq$ C10) fluorophosphates	N/A	
N,N-Methylisopropylacetamide	1339185-57-7	
N,N-Methylethylacetamide	1339632-40-4	
N,N-Ethylisopropylacetamide	1339156-10-3	
N,N-Methylpropylacetamide	1344238-28-3	
N,N-Ethylpropylacetamide	1339737-43-7	
N,N-Isopropylpropylacetamide	1341389-98-7	
N,N-Methylethylpropanamide	1339424-26-8	
N,N-Ethylisopropylpropanamide	1344354-09-1	
N,N-Methylpropylpropanamide	1340216-25-2	
N,N-Ethylpropylpropanamide	1341493-60-4	
N,N-Isopropylpropylpropanamide	1343225-93-3	
N,N-Methylisopropylpropanamide	1339042-55-5	
N,N-Methylethylbutanamide	1341049-51-1	
N,N-Methylpropylbutanamide	1343721-02-7	
N,N-Ethylpropylbutanamide	1343806-12-1	
N,N-Isopropylpropylbutanamide	1343316-02-8	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
N,N-Methylisopropylbutanamide	1340219-94-4	
N,N-Ethylisopropylbutanamide	1342204-10-7	
N,N-Methylethylisobutanamide	1342365-47-2	
N,N-Ethylpropylisobutanamide	1342566-58-8	
N,N-Methylpropylisobutanamide	1342270-21-6	
N,N-Isopropylpropylisobutanamide	1342156-11-9	
N,N-Methylisopropylisobutanamide	1341992-96-8	
N,N-Ethylisopropylisobutanamide	1339048-76-8	
N,N-Dimethylacetamide hydrobromide	1801188-12-4	
N,N-Dimethylacetamide hydrochloride	2909-15-1	
N,N-Diethylacetamide hydrochloride	91400-32-7	
N,N-Diethylacetamide hydrobromide	78053-54-0	
N,N-Dimethylpropanamide dihydrochloride	79972-73-9	
N,N-Dimethylpropanamide hydrochloride	56776-15-9	

### Equipment

<i>Item</i>	<i>Regulation 53A applies?</i>
Floor-mounted fume hoods (walk-in style) with a minimum nominal width of 2.5 metres.	
Full face-mask air-purifying and air-supplying respirators.	Yes
Class II biosafety cabinets and glove boxes.	
Batch centrifuges with a rotor capacity of 4 L or greater, usable with biological materials.	

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<i>Item</i>	<i>Regulation 53A applies?</i>
Fermenters with an internal volume of 10 L – 20 L, usable with biological materials.	Yes
Reaction vessels, reactors, agitators, heat exchangers, condensers, pumps (including single seal pumps), valves, storage tanks, containers, receivers, and distillation or absorption columns that meet AG performance parameters, regardless of their materials of construction.	Yes
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.	
Vacuum pumps with a manufacturer's specified maximum flow-rate greater than 1 m <sup>3</sup> /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.	
Laboratory equipment, including parts and accessories for such equipment, for the analysis or detection, destructive or non-destructive, of chemical substances.	
Whole chlor-alkali electrolysis cells – mercury, diaphragm, and membrane.	
Titanium electrodes (including those with coatings produced from other metal oxides), specially designed for use in chlor-alkali cells.	
Nickel electrodes (including those with coatings produced from other metal oxides), specially designed for use in chlor-alkali cells.	
Bipolar titanium nickel electrodes (including those with coatings produced from other metal oxides), specially designed for use in chlor-alkali cells.	
Asbestos diaphragms specially designed for use in chlor-alkali cells.	

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<i>Item</i>	<i>Regulation 53A applies?</i>
Fluoropolymer based diaphragms specially designed for use in chlor-alkali cells.	
Fluoropolymer based ion exchange membranes specially designed for use in chlor-alkali cells.	
Compressors specially designed to compress wet or dry chlorine, regardless of material of construction.	
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 84 19 89 98 00.	Yes
Microreactors—  Instruments and apparatus for physical or chemical analysis: 90 27 89 90 00 BE (classified similar item to 90 27 80 17 90, now invalid due to code changes), for similar microreactors.	
Solid & Liquid Aerosol generating equipment—  Mechanical appliances (whether or not hand-operated), for projecting, dispersing or spraying liquids or powders: 84 24 89 70 00.	

### Laboratory equipment

<i>Item</i>	<i>Regulation 53A applies?</i>
Next-generation (second generation) and third generation DNA and RNA sequencers	
PCR Machines and qPCR (real-time) PCR machines	Yes
Solid phase DNA and RNA synthesisers	
Peptide synthesizers	
Automated nucleic acid extraction systems	
Ultracentrifuges	
Probe sonicators	



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<i>Item</i>	<i>Regulation 53A applies?</i>
Fast protein liquid chromatography (FPLC) systems (medium pressure chromatography systems)	
Cell disruptors and tissue homogenisers, with a volume of 1 L or greater	

**Associated Parts and Consumables**

<i>Item</i>	<i>Regulation 53A applies?</i>
Next generation (second generation) and third generation DNA and RNA sequencers	Yes
DNA and RNA sequencing reagent kits	
Library and template preparation kits	
Cluster generation kits	Yes
Flow cells	Yes
PCR Machines and qPCR (real-time) PCR machines	Yes
Solid phase DNA and RNA synthesisers	
Nucleoside phosphoramidites	
Columns	
Solid support resin	Yes
Reagent kits	Yes
Synthesis reagents	Yes
Peptide synthesizers	
Fmoc and T-Boc protected amino acids	
Resins	Yes
Synthesis reagents	Yes
Automated nucleic acid extraction systems	Yes
Rotor adapters	
Ultracentrifuges	
Ultracentrifuge rotors with total capacity 1 L or greater	
Probe sonicators	
Sonicator probes over 25mm diameter	
High volume (1 L or greater) sonicator continuous flow cell	
Fast protein liquid chromatography (FPLC) systems (medium pressure chromatography systems)	
FPLC columns	
Reagents	Yes
Cell disruptors and tissue homogenisers	

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**Other related items**

<i>Item</i>	<i>Regulation 53A applies?</i>
0B999 Specific processing equipment as follows:	
a. Ring magnets.	Yes
b. Hot cells.	
c. Glove boxes suitable for use with radioactive materials.	
0D999 Specific software, as follows:	
a. Software for neutronic calculations/modelling;	
b. Software for radiation transport calculations/modelling;	
c. Software for hydrodynamic calculations/modelling.	Yes
1A995 Protective and detection equipment as follows and specially designed components therefor.	
a. Personal radiation monitoring dosimeters;	
b. Equipment limited by design or function to protect against hazards specific to civil industries, such as mining, quarrying, agriculture, pharmaceuticals, medical, veterinary, environmental, waste management, or to the food industry.	
<i>Note: This entry 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.</i>	
1A999 Specific processing equipment as follows:	
Radiation detection, monitoring and measurement equipment	
Radiographic detection equipment such as x-ray converters, and storage phosphor image plates.	Yes
1C991 Vaccines, immunotoxins, medical products, diagnostic and food testing kits, as follows.	
<i>Technical note:- For the purpose of this entry, 'immunotoxins' are monoclonal antibodies linked to a toxin with the intention of destroying a specific target cell while leaving adjacent cells intact. For the purpose of this entry, "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. For the purpose of this entry, "diagnostic and food testing kits" are specifically developed, packaged and marketed for diagnostic or public</i>	

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Item	Regulation 53A applies?
<p><i>health purposes. For the purpose of this entry, “vaccine” is defined as a medicinal (or veterinary) product in a pharmaceutical formulation that is intended to stimulate a protective immunological response in humans or animals in order to prevent disease in those to whom or to which it is administered.</i></p>	
<p><i>Technical Note: For purposes of the controls described in this entry ‘toxins’ refers to those toxins, or their subunits, controlled under 1C351.d of Annex I of the Dual-Use Regulation</i></p>	
<p>a. Vaccines containing, or designed for use against, items controlled by 1C351, 1C353 or 1C354 of Annex I of the Dual-Use Regulation;</p>	Yes
<p>b. Immunotoxins containing items controlled by 1C351.d of Annex I of the Dual-Use Regulation;</p>	Yes
<p>c. Medical products that contain any of the following:</p>	Yes
<p>c.1. Toxins controlled by 1C351.d of Annex I of the Dual-Use Regulation (<i>except for</i> botulinum toxins controlled by 1C351.d.3 of Annex I of the Dual-Use Regulation, conotoxins controlled by 1C351.d.6, of Annex I of the Dual-Use Regulation or items controlled for CW reasons under 1C351.d.11 or .d.12 of Annex I of the Dual-Use Regulation); or</p>	Yes
<p>c.2. Genetically modified organisms or genetic elements controlled by 1C353.a.3 of Annex I of the Dual-Use Regulation (<i>except for</i> those that contain, or code for, botulinum toxins controlled by C351.d.3 of Annex I of the Dual-Use Regulation or conotoxins controlled by 1C351.d.6 of Annex I of the Dual-Use Regulation);</p>	Yes
<p>d. Medical products not controlled by 1C991.c that contain any of the following:</p>	Yes
<p>d.1. Botulinum toxins controlled by 1C351.d.3 of Annex I of the Dual-Use Regulation;</p>	Yes
<p>d.2. Conotoxins controlled by 1C351.d.6 of Annex I of the Dual-Use Regulation; or</p>	Yes
<p>d.3. Genetically modified organisms or genetic elements controlled by 1C353.a.3 of Annex I of the Dual-Use Regulation that contain, or code for, botulinum toxins controlled by 1C351.d.3 of Annex I of the Dual-Use Regulation or conotoxins controlled by 1C351.d.6 of Annex I of the Dual-Use Regulation;</p>	Yes
<p>e. Diagnostic and food testing kits containing items controlled by 1C351.d of Annex I of the Dual-Use Regulation.</p>	Yes

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1C995 Mixtures that contain chemicals controlled by 1C350 or 1C450 of Annex 1 of the Dual-Use Regulation and medical, analytical, diagnostic, and food testing kits that contain chemicals controlled by 1C350, as follows:

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.

a. Mixtures containing the following concentrations of precursor chemicals controlled by 1C350 of Annex I of the Dual-Use Regulation:

a.1. Mixtures containing 10 per cent. or less, by weight, of any of the following—

**dummy table caption**

<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Arsenic trichloride;	7784-34-1	
Benzilic acid;	76-93-7	
Diethyl ethylphosphonate;	78-38-6	
Diethyl methylphosphonate;	683-08-9	
Diethyl methylphosphonite	15715-41-0	
Diethyl-N,N-dimethylphosphoramidate;	2404-03-7	
N,N-Diisopropylaminoethanethiol hydrochloride;	41480-75-5	
N,N-Diisopropyl-beta-aminoethane thiol;	5842-07-9	
N,N-Diisopropyl-beta-aminoethanol;	96-80-0	
N,N-Diisopropyl-beta-aminoethyl chloride;	96-79-7	
N,N-Diisopropyl-beta-aminoethyl chloride hydrochloride;	4261-68-1	
Dimethyl ethylphosphonate;	6163-75-3	
Dimethyl methylphosphonate;	756-79-6	
N,N-dimethylamino-phosphoryl dichloride;	677-43-0	
Ethyl phosphonous dichloride [Ethyl phosphinyl dichloride];	1498-40-4	
Ethyl phosphonus difluoride [Ethyl phosphinyl difluoride];	430-78-4	
Ethyl phosphoryl dichloride;	1066-50-8	
Methylphosphonic acid;	993-13-5	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Methylphosphonothioic dichloride.	676-98-2	
Pinacolyl alcohol;	464-07-3	
3-Quinuclidinol;	1619-34-7	
Thiodiglycol.	111-48-8	

a.2. Mixtures containing less than 30 per cent., by weight, of:

a.2.a. Any of the following—

**dummy table caption**

<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Diethyl phosphite;	762-04-9	
Dimethyl phosphite (dimethyl hydrogen phosphite);	868-85-9	
Ethyldiethanolamine;	139-87-7	
Phosphorus oxychloride;	10025-87-3	
Phosphorus pentachloride;	10026-13-8	
Phosphorus trichloride;	7719-12-2	
Sulfur dichloride;	10545-99-0	
Sulfur monochloride;	10025-67-9	
Thionyl chloride;	7719-09-7	
Triethanolamine;	102-71-6	
Triethyl phosphite;	122-52-1	
Trimethyl phosphite.	121-45-9	

or

a.2.b. Any of the following single precursor chemicals—

**dummy table caption**

<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Ammonium hydrogen fluoride;	1341-49-7	
2-Chloroethanol;	107-07-3	
Diethylamine;	109-89-7	
N,N-Diethylaminoethanol;	100-37-8	
Diethyl chlorophosphite;	589-57-1	
O,O-Diethyl phosphorodithioate;	298-06-6	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
O,O-Diethyl phosphorothioate;	2465-65-8	
Di-isopropylamine;	108-18-9	
Dimethylamine;	124-40-3	
Dimethylamine hydrochloride;	506-59-2	
Ethyl chlorofluorophosphate;	762-77-6	
Ethyl dichlorophosphate;	1498-51-7	
Ethyl difluorophosphate;	460-52-6	
Hydrogen fluoride;	7664-39-3	
3-Hydroxyl-1-methylpiperidine;	3554-74-3	
Methyl benzilate;	76-89-1	
Methyl chlorofluorophosphate;	754-01-8	
Methyl dichlorophosphate;	677-24-7	
Methyl difluorophosphate;	22382-13-4	
N,N Diethylacetamide;	14277-06-6	
N,N-Diethylbutanamide;	53510-30-8	
N,N-Diethylformamide;	90324-67-7	
N,N Diethylisobutanamide;	1342789-47-2	
N,N-Diethylpropanamide;	84764-73-8	
N,N-Diisopropylbutanamide;	1315467-17-4	
N,N-Diisopropylformamide;	857522-08-8	
N,N-Dimethylacetamide;	2909-14-0	
N,N-Dimethylbutanamide;	1340437-35-5	
N,N-Dimethylformamide;	44205-42-7	
N,N-Dimethylisobutanamide;	321881-25-8	
N,N-Dimethylpropanamide;	56776-14-8	
N,N-Dipropylacetamide;	1339586-99-0	
N,N-Dipropylbutanamide;	1342422-35-8	
N,N-Dipropylformamide;	48044-20-8	
N,N-Dipropylisobutanamide;	1342700-45-1	
N,N-Dipropylpropanamide;	1341496-89-6	
Phosphorus pentasulfide;	1314-80-3	
Pinacolone;	75-97-8	
Potassium bifluoride;	7789-29-9	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Potassium cyanide;	151-50-8	
Potassium fluoride;	7789-23-3	
3-Quinuclidone;	3731-38-2	
Sodium bifluoride;	1333-83-1	
Sodium cyanide;	143-33-9	
Sodium fluoride;	7681-49-4	
Sodium hexafluorosilicate;	16893-85-9	
Sodium sulfide;	1313-82-2	
Triethanolamine hydrochloride;	637-39-8	
Tri-isopropyl phosphite.	116-17-6	

b. Mixtures containing the following concentrations of toxic or precursor chemicals controlled by 1C450 of Annex I of the Dual-Use Regulation—

b.1. Mixtures containing the following concentrations of CWC Schedule 2 chemicals controlled by 1C450.a.2, 1C450.b1, 1C450.b.2, 1C450.b.3, 1C450.b.4, 1C450.b.5 or 1C450.b.6 of Annex I of the Dual-Use Regulation;

b.1.a. Mixtures containing 1 per cent. or less, by weight, of any single CWC Schedule 2 chemical controlled by 1C450.a.2 of Annex I of the Dual-Use Regulation (i.e., mixtures containing PFIB); or

b.1.b. Mixtures containing 10 per cent. or less, by weight, of any single CWC Schedule 2 chemical controlled by 1C450.b1, 1C450.b.2, 1C450.b.3, 1C450.b.4, 1C450.b.5 or 1C450.b.6 of Annex I of the Dual-Use Regulation.

b.2. Mixtures containing less than 30 per cent., by weight, of any single CWC Schedule 3 chemical controlled by 1C450.a.4, 1C450.a.5, 1C450.a.6, 1C450.a.7, 1C450.b.8, of Annex I of the Dual-Use Regulation.

c. “Medical, analytical, diagnostic, and food testing kits” that contain precursor chemicals controlled by the following in an amount not exceeding 300 grams per chemical.

**Delete this heading**

<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Ammonium hydrogen fluoride;	1341-49-7	Yes to all items in column 1 of this table
2-Chloroethanol;	107-07-3	
Diethylamine;	109-89-7	
N,N-Diethylaminoethanol;	100-37-8	
Diethyl chlorophosphite;	589-57-1	
O,O-Diethyl phosphorodithioate;	298-06-6	
O,O-Diethyl phosphorothioate;	2465-65-8	
Di-isopropylamine;	108-18-9	

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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Dimethylamine;	124-40-3	
Dimethylamine hydrochloride;	506-59-2	
Ethyl chlorofluorophosphate;	762-77-6	
Ethyl dichlorophosphate;	1498-51-7	
Ethyl difluorophosphate;	460-52-6	
Hydrogen fluoride;	7664-39-3	
3-Hydroxyl-1-methylpiperidine;	3554-74-3	
Methyl benzilate;	76-89-1	
Methyl chlorofluorophosphate;	754-01-8	
Methyl dichlorophosphate;	677-24-7	
Methyl difluorophosphate;	22382-13-4	
N,N Diethylacetamide;	14277-06-6	
N,N-Diethylbutanamide;	53510-30-8	
N,N-Diethylformamide;	90324-67-7	
N,N Diethylisobutanamide;	1342789-47-2	
N,N-Diethylpropanamide;	84764-73-8	
N,N-Diisopropylbutanamide;	1315467-17-4	
N,N-Diisopropylformamide;	857522-08-8	
N,N-Dimethylacetamide;	2909-14-0	
N,N-Dimethylbutanamide;	1340437-35-5	
N,N-Dimethylformamide;	44205-42-7	
N,N-Dimethylisobutanamide;	321881-25-8	
N,N-Dimethylpropanamide;	56776-14-8	
N,N-Dipropylacetamide;	1339586-99-0	
N,N-Dipropylbutanamide;	1342422-35-8	
N,N-Dipropylformamide;	48044-20-8	
N,N-Dipropylisobutanamide;	1342700-45-1	
N,N-Dipropylpropanamide;	1341496-89-6	
Phosphorus pentasulfide;	1314-80-3	
Pinacolone;	75-97-8	
Potassium bifluoride;	7789-29-9	
Potassium cyanide;	151-50-8	
Potassium fluoride;	7789-23-3	
3-Quinuclidone;	3731-38-2	



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<i>Chemical Name</i>	<i>CAS Number</i>	<i>Regulation 53A applies?</i>
Sodium bifluoride;	1333-83-1	
Sodium cyanide;	143-33-9	
Sodium fluoride;	7681-49-4	
Sodium hexafluorosilicate;	16893-85-9	
Sodium sulfide;	1313-82-2	
Triethanolamine hydrochloride;	637-39-8	
Tri-isopropyl phosphite.	116-17-6	

## SCHEDULE 3D

Regulation 46R

## Revenue generating goods

1. Paragraph 1 of Schedule 3 applies for the purpose of interpreting this Schedule.
2. A revenue generating good is any thing falling within a commodity code mentioned in column 1 of the following table.

<i>Commodity code (1)</i>	<i>Item (2)</i>
0306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked crustaceans, whether in shell or not, whether or not cooked before or during the smoking process; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine
1604 31 00	Caviar
1604 32 00	Caviar substitutes
2523	Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cements, whether or not coloured or in the form of clinkers
28251000	Hydrazine and hydroxylamine and their inorganic salts
28254000	Nickel oxides and hydroxides
28255000	Copper oxides and hydroxides
28256000	Germanium oxides and zirconium dioxide
28257000	Molybdenum oxides and hydroxides
28258000	Antimony oxides
28259011	Calcium hydroxide of a purity of $\geq 98\%$ calculated on the dry weight, in the form of particles of which not $> 1\%$ by weight have a particle-size $> 75$ micrometres and not $> 4\%$ by weight have a particle-size of $< 1,3$ micrometres
28259019	Calcium oxide, hydroxide and peroxide (excl. calcium hydroxide of a purity of $\geq 98\%$ calculated on the dry weight, in the form of particles

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<i>Commodity code (1)</i>	<i>Item (2)</i>
	of which not > 1% by weight have a particle-size > 75 micrometres and not > 4% by weight have a particle-size of < 1,3 micrometres)
28259020	Beryllium oxide and hydroxide
28259040	Tungsten oxides and hydroxides
28259060	Cadmium oxide
28259085	Inorganic bases and metal oxides, hydroxides and peroxides, n.e.s.
28351000	Phosphinates "hypophosphites" and phosphonates "phosphites"
28352200	Mono- or disodium phosphate
28352400	Phosphates of potassium
28352500	Calcium hydrogenorthophosphate "dicalcium phosphate"
28352910	Phosphate of triammonium
28352930	Phosphate of trisodium
28352990	Phosphates (excl. phosphates of triammonium, monosodium, disodium, trisodium, of potassium, of calcium and of mercury)
28353100	Sodium triphosphate "sodium tripolyphosphate", whether or not chemically defined
28353900	Polyphosphates, whether or not chemically defined (excl. sodium triphosphate "sodium tripolyphosphate", and inorganic or organic compounds of mercury whether or not chemically defined)
29012100	Ethylene
29012200	Propene "propylene"
29012300	Butene "butylene" and isomers thereof
29012400	Buta-1,3-diene and isoprene
29012900	Hydrocarbons, acyclic, unsaturated (excl. ethylene, propene "propylene", butene "butylene" and isomers thereof and Buta-1,3-diene and isoprene)
2902	Cyclic hydrocarbons
29051200	Propan-1-ol "propyl alcohol" and propan-2-ol "isopropyl alcohol"
29051300	Butan-1-ol "n-butyl alcohol"
29051410	2-Methylpropan-2-ol "tert-butyl alcohol"
29051490	Butanols (excl. butan-1-ol "n-butyl alcohol" and 2-Methylpropan-2-ol "tert-butyl alcohol")
29051620	Octan-2-ol
29051685	Octanol "octyl alcohol" and isomers thereof (excl. octan-2-ol)
29051700	Dodecan-1-ol "lauryl alcohol", hexadecan-1-ol "cetyl alcohol" and octadecan-1-ol "stearyl alcohol"
29051900	Saturated monohydric acyclic alcohols (excl. methanol "methyl alcohol", propan-1-ol "propyl alcohol", propan-2-ol "isopropyl

<i>Commodity code (1)</i>	<i>Item (2)</i>
	alcohol”, butanols, octanol “octyl alcohol” and isomers thereof, dodecan-1-ol “lauryl alcohol”, hexadecan-1-ol “cetyl alcohol” and octadecan-1-ol “stearyl alcohol”)
29052200	Acyclic terpene alcohols
29052910	Allyl alcohol
29052990	Unsaturated monohydric acyclic alcohols (excl. allyl alcohol and acyclic terpene alcohols)
29053100	Ethylene glycol “ethanediol”
29053200	Propylene glycol “propane-1,2-diol”
29053920	Butane-1,3-diol
29053926	Butane-1,4-diol or tetramethylene glycol [1,4-butanediol] having a bio-based carbon content of 100% by mass
29053928	Butane-1,4-diol (excl. having a bio-based carbon content of 100%)
29053930	2,4,7,9-Tetramethyldec-5-yne-4,7-diol
29053995	Acyclic diols (excl. ethylene glycol “ethanediol”, propylene glycol “propane-1,2-diol”, butane-1,3-diol, butane-1,4-diol and 2,4,7,9-tetramethyldec-5-yne-4,7-diol)
29054100	2-Ethyl-2-“hydroxymethyl” propane-1,3-diol “trimethylolpropane”
29054200	Pentaerythritol
29054300	Mannitol
29054411	D-glucitol “sorbitol”, in aqueous solution containing ≤ 2% by weight of d-mannitol, calculated on the d-glucitol content
29054419	D-glucitol “sorbitol” in aqueous solution (excl. containing ≤ 2% by weight of d-mannitol, calculated on the d-glucitol content)
29054491	D-glucitol “sorbitol”, containing ≤ 2% by weight of d-mannitol, calculated on the d-glucitol content (excl. in aqueous solution)
29054499	D-glucitol “sorbitol” (excl. in aqueous solution and containing ≤ 2% by weight of d-mannitol, calculated on the d-glucitol content)
29054500	Glycerol
29054900	Tri- and other polyhydric acyclic alcohols (excl. 2-ethyl-2-“hydroxymethyl” propane-1,3-diol “trimethylolpropane”, pentaerythritol, mannitol, d-glucitol “sorbitol” and glycerol)
29055100	Ethchlorvynol “INN”
29055991	2,2-Bis “bromomethyl” propanediol
29055998	Halogenated, sulphonated, nitrated or nitrosated derivatives of acyclic alcohols (excl. 2,2-bis “bromomethyl” propanediol and ethchlorvynol “INN”)
2907	Phenols; phenol-alcohols
2909	Ethers, ether-alcohols, ether-phenols, ether-alcohol-phenols, alcohol peroxides, ether peroxides, acetal and hemiacetal peroxides, ketone

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<i>Commodity code (1)</i>	<i>Item (2)</i>
	peroxides (whether or not chemically defined), and their halogenated, sulphonated, nitrated or nitrosated derivatives
3104 20	Potassium chloride
3105 20	Mineral or chemical fertilisers containing the three fertilising elements nitrogen, phosphorus and potassium
3105 60	Mineral or chemical fertilisers containing the two fertilising elements phosphorus and potassium
3105 90 20	Other fertilisers containing potassium chloride
3105 90 80	Other fertilisers containing potassium chloride
3902	Polymers of propylene or of other olefins, in primary forms
4011	New pneumatic tyres, of rubber
44	Wood and articles of wood; wood charcoal
4705	Wood pulp obtained by a combination of mechanical and chemical pulping processes
4804	Uncoated kraft paper and paperboard, in rolls or sheets, other than that of heading 4802 or 4803
6810	Articles of cement, of concrete or of artificial stone, whether or not reinforced
7005	Float glass and surface ground or polished glass, in sheets, whether or not having an absorbent, reflecting or non-reflecting layer, but not otherwise worked
7007	Safety glass, consisting of toughened (tempered) or laminated glass
7010	Carboys, bottles, flasks, jars, pots, phials, ampoules and other containers, of glass, of a kind used for the conveyance or packing of goods; preserving jars of glass; stoppers, lids and other closures, of glass
7019	Glass fibres (including glass wool) and articles thereof (for example, yarn, rovings, woven fabrics)
7106	Silver (including silver plated with gold or platinum), unwrought or in semi-manufactured forms, or in powder form
7606	Aluminium plates, sheets and strip, of a thickness exceeding 0.2 mm
7801	Unwrought lead
84111100	Turbojets of a thrust $\leq$ 25 kN
84111210	Turbojets of a thrust $>$ 25 kN but $\leq$ 44 kN
84111230	Turbojets of a thrust $>$ 44 kN but $\leq$ 132 kN
84111280	Turbojets of a thrust $>$ 132 kN
84112100	Turbopropellers of a power $\leq$ 1.100 kW
84112220	Turbopropellers of a power $>$ 1.100 kW but $\leq$ 3.730 kW
84112280	Turbopropellers of a power $>$ 3.730 kW

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<i>Commodity code (1)</i>	<i>Item (2)</i>
84118100	Gas turbines of a power $\leq$ 5.000 kW (excluding turbojets and turbopropellers)
84118220	Gas turbines of a power $>$ 5.000 kW but $\leq$ 20.000 kW (excluding turbojets and turbopropellers)
84118260	Gas turbines of a power $>$ 20.000 kW but $\leq$ 50.000 kW (excluding turbojets and turbopropellers)
84118280	Gas turbines of a power $>$ 50.000 kW (excluding turbojets and turbopropellers)
84119900	Parts of gas turbines, n.e.s.
8431	Parts suitable for use solely or principally with the machinery of headings 8425 to 8430
8901	Cruise ships, excursion boats, ferry-boats, cargo ships, barges and similar vessels for the transport of persons or goods
8904	Tugs and pusher craft
8905	Light-vessels, fire-floats, dredgers, floating cranes, and other vessels the navigability of which is subsidiary to their main function; floating docks; floating or submersible drilling or production platforms
9403	Other furniture and parts thereof <sup>7</sup>