

[^{F1}SCHEDULE 1

Articles 2, 24

Goods Subject to Stricter Export and Trade Controls

Textual Amendments

F1 Sch. 1 substituted (31.8.2010) by [The Export Control \(Amendment\) \(No. 2\) Order 2010 \(S.I. 2010/2007\)](#), arts. 1(1), 2, [Sch.](#)

Note: In this Schedule, defined terms are printed in quotation marks.

Definitions

In this Schedule:

[^{F2}“attack helicopter” means rotary-wing aircraft designed, equipped or modified to engage targets by employing guided or unguided anti-armour, air-to-surface, air-to-subsurface, or air-to-air weapons and equipped with an integrated fire control and aiming system for these weapons, including versions of these aircraft which perform specialised reconnaissance or electronic warfare missions;]

“cluster munitions” means conventional munitions designed to disperse or release “explosive submunitions” and includes those “explosive submunitions”, but does not include:

- (a) munitions or submunitions designed to dispense flares, smoke, pyrotechnics or chaff; or munitions designed exclusively for an air defence role,
- (b) munitions or submunitions designed to produce electrical or electronic effects,
- (c) munitions that have all of the following characteristics:
 - (i) each munition contains fewer than ten “explosive submunitions”,
 - (ii) each “explosive submunition” weighs more than four kilograms,
 - (iii) each “explosive submunition” is designed to detect and engage a single target object,
 - (iv) each “explosive submunition” is equipped with an electronic “self-destruction mechanism”,
 - (v) each “explosive submunition” is equipped with an electronic “self-deactivating feature”;

[^{F2}“combat aircraft” means fixed-wing or variable geometry wing aircraft designed, equipped or modified to engage targets by employing guided missiles, unguided rockets, bombs, guns, cannons or other weapons of destruction, including versions of these aircraft which perform specialised electronic warfare, suppression of air defence or reconnaissance missions. The term “combat aircraft” does not include primary trainer aircraft, unless designed, equipped or modified as described above.]

“explosive bomblets” means conventional munitions, weighing less than 20 kilograms each, which are not self propelled and which, in order to perform their task, are designed to be dispersed or released by a dispenser affixed to an aircraft, and are designed to function by detonating an explosive charge prior to, on or after impact;

“explosive submunitions” means conventional munitions, weighing less than 20 kilograms each, which, in order to perform their task, are dispersed or released by a cluster munition and are designed to function by detonating an explosive charge prior to, on or after impact;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

“ordinary handcuffs” means handcuffs which have an overall dimension including chain, measured from the outer edge of one cuff to the outer edge of the other cuff, between 150 and 240mm when locked and have not been modified to cause physical pain or suffering;

“production” has the same meaning as in Schedule 2;

“self-deactivating feature” means one which automatically renders a munition inoperable by means of the irreversible exhaustion of a component (eg, a battery) that is essential to the operation of the munition;

“self-destruction mechanism” means an incorporated, automatically-functioning mechanism which is in addition to the primary initiating mechanism of a munition and which secures the destruction of the munition into which it is incorporated.

Textual Amendments

F2 Words in Sch. 1 inserted (9.4.2014) by [The Export Control \(Amendment\) Order 2014 \(S.I. 2014/702\)](#), arts. 1, **2(2)(a)**

PART 1

Category A Goods

Certain Security and Para-Military Police Equipment

1. Goods designed for the execution of human beings, as follows—
 - a. Gallows and guillotines;
 - b. Electric chairs;
 - c. Air-tight vaults made of eg, steel and glass, designed for the purpose of execution of human beings by the administration of lethal gas or substance;
 - d. Automatic drug injection systems designed for the purpose of execution of human beings by the administration of a lethal chemical substance.
2. **Restraints specially designed for restraining human beings, as follows—**
 - a. Leg-irons, gangchains, shackles and individual cuffs or shackle bracelets except those that are “ordinary handcuffs”;
 - b. Restraint chairs unless designed for disabled persons;
 - c. Shackle boards;
 - d. Thumb-cuffs and thumb-screws, including serrated thumb-cuffs;
 - e. Electric shock belts.
3. Portable devices designed or modified for the purpose of riot control or self-protection by the administration of an electric shock (eg, electric-shock batons, electric-shock shields, stun-guns and electric-shock dart-guns).
4. Components specially designed or modified for the devices in paragraph 3.
5. Hand-held, spiked batons.

Cluster munitions, explosive submunitions and explosive bomblets

6. a. “Cluster munitions”;
 - b. “Explosive bomblets” which are specifically designed to be dispersed or released from dispensers affixed to aircraft.
 7. “Explosive submunitions”
 8. Components specially designed for “cluster munitions”, “explosive submunitions” or “explosive bomblets”.
-

[^{F3}PART 2 CATEGORY B GOODS

Textual Amendments

- F3** Sch. 1 Pt. 2 substituted (9.4.2014) by [The Export Control \(Amendment\) Order 2014 \(S.I. 2014/702\)](#), arts. 1, **2(2)(b)**

Small arms and light weapons within ML1 and ML2

9. Goods specified in entry ML1.a, ML1.b, ML1.c or ML2.a in Schedule 2 that are designed to be carried, operated and fired by an individual or by three or fewer individuals acting together, other than mortars with a calibre of 100mm or more.

Accessories and ammunition for small arms and light weapons within ML1 and ML2

- 10.** The following goods—
- (a) accessories specified in entry ML1.d or ML2.c. in Schedule 2 that are capable of being used in connection with weapons falling within paragraph 9;
 - (b) weapon sights specified in entry ML5.a. in Schedule 2 that are designed for use within weapons falling within paragraph 9; and
 - (c) ammunition that is capable of being fired or launched by weapons falling within paragraph 9.

[^{F4}Non-military Firearms

10A. [^{F5}Firearms, their parts and essential components and ammunition specified in entry PL9010 or PL9011 in Schedule 3.]]

Textual Amendments

- F4** Sch. 1 para. 10A inserted (17.4.2015) by [The Export Control \(Amendment\) \(No. 2\) Order 2015 \(S.I. 2015/940\)](#), arts. 1, **2(5)**
- F5** Words in Sch. 1 para. 10A substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(2)**

Light weapons within ML4

- 11.** Equipment specified in entry ML4.b. in Schedule 2 that is—

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- (a) specially designed for firing or launching rockets, grenades, missiles or other explosive devices; and
- (b) designed to be carried, operated and fired by an individual or by three or fewer individuals acting together.

Ammunition for light weapons within ML4

12. Rockets, grenades, missiles and other explosive devices that are—
- (a) specified in entry ML4 in Schedule 2; and
 - (b) capable of being fired or launched from equipment falling within paragraph 11.

Hand grenades

13. Grenades specified in entry ML4 in Schedule 2 that are designed to be thrown.

MANPADS, missiles for them, associated equipment and their specially designed components

14. To the extent they do not fall within paragraph 11 or 12, the following goods—
- (a) man-portable air defence systems (MANPADS), as follows:
 - (i) surface-to-air missile systems designed to be man-portable and operated and fired by a single individual;
 - (ii) surface-to-air missile systems designed to be operated and fired by more than one individual acting as a crew and portable by several individuals;
 - (b) missiles for MANPADS;
 - (c) “production” equipment specially designed for MANPADS;
 - (d) field test equipment specially designed for MANPADS;
 - (e) specialised training equipment and simulators for MANPADS.

Long-range missiles

15. Missiles capable of a range of 300km or more which fall within Schedule 2.

Anti-vehicle landmines

16. Land mines designed to be placed under, on or near the ground or other surface area and to be exploded by the presence, proximity or contact of a vehicle.

Components for “goods” within this Part

17. Components specially designed for goods falling within any of paragraphs 9 to 16.

Battle tanks and armoured combat vehicles within ML6

18. Vehicles specified in entry ML6.a in Schedule 2 as follows—
- (a) Tracked or wheeled self-propelled armoured fighting vehicles with an unladen weight of 16.5 metric tonnes or more and with a main gun with a calibre of 75mm or more;
 - (b) Tracked, semi-tracked or wheeled self-propelled vehicles, with armoured protection, as follows:
 - (i) designed and equipped to transport a squad of four or more infantrymen; or

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- (ii) armed with an integral weapon with a calibre of 12.5mm or more or a missile launcher.

Large-calibre artillery systems within ML2 and ML4

- 19.** To the extent that they do not fall within paragraph 9 or 11, the following goods—
- (a) Guns or howitzers specified in entry ML2.a of Schedule 2 with a calibre of 75mm or more;
 - (b) Mortars specified in entry ML2.a of Schedule 2 with a calibre of 100mm or more; and
 - (c) Multiple-launch rocket systems specified in entry ML4.b of Schedule 2 with a calibre of 75 mm or more.

Combat aircraft and attack helicopters within ML10

20. “Combat aircraft” and “attack helicopters” specified in entry ML10.a or ML10.c of Schedule 2.

Warships within ML9

- 21.** Vessels and submarines specified in entry ML9.a of Schedule 2 as follows—
- (a) Having a standard displacement of 500 metric tons or above; or
 - (b) Having a standard displacement of less than 500 metric tons and equipped for launching missiles or torpedoes with a range of 25km or more.

Other missiles and missile launchers

22. To the extent they are not covered elsewhere in this Part, the following goods specified in entry ML4 of Schedule 2—

- (a) rockets or missiles capable of a range of 25km or more other than ‘ground-to-air missiles’;
- (b) Equipment designed or modified for launching missiles or rockets in sub-paragraph (a).

Note: Paragraph 22 includes remotely piloted vehicles with the characteristics for missiles as defined above.

Technical Note:

‘ground-to-air missiles’ means those surface-to-air missiles which are mounted on fixed land sites or on wheeled or tracked mobile launchers.]]

[^{F6}SCHEDULE 2

Article 2

MILITARY GOODS, SOFTWARE AND TECHNOLOGY

Textual Amendments

F6 Sch. 2 substituted (22.2.2017) by [The Export Control \(Amendment\) Order 2017 \(S.I. 2017/85\)](#), art. 1, Sch.

Note: In this Schedule, defined terms are printed in quotation marks.

Definitions

In this Schedule:

F7

...

[^{F8}“airship” means a power-driven airborne vehicle that is kept buoyant by a body of gas (usually helium, formerly hydrogen) which is lighter than air;]

“biocatalyst” means enzymes for specific chemical or biochemical reactions or other biological compounds which bind to and accelerate the degradation of chemical warfare (CW) agents;

[^{F9}“biological agents” means pathogens or toxins, selected or modified (such as altering purity, shelf life, virulence, dissemination characteristics, or resistance to UV radiation) to produce casualties in humans or animals, degrade equipment or damage crops or the environment;]

“biopolymer” means the following biological macromolecules:

- a. enzymes for specific chemical or biochemical reactions;
- b. ‘monoclonal antibodies’, ‘polyclonal antibodies’ or ‘anti-idiotypic antibodies’;
- c. specially designed or specially processed ‘receptors’;

Technical Note:

‘Monoclonal antibodies’ means proteins which bind to a specific antigenic site and are produced by a single clone of cells;

‘Polyclonal antibodies’ means a mixture of proteins which bind to a specific antigen and are produced by more than one clone of cells;

‘Anti-idiotypic antibodies’ means antibodies which bind to the specific antigen binding sites of other antibodies;

‘Receptors’ means biological macromolecular structures capable of binding ligands, the binding of which affects physiological functions.

[^{F10}“cyber incident response” means the process of exchanging necessary information or “software” on a cybersecurity incident with individuals or organisations responsible for conducting or coordinating remediation to address the cybersecurity incident;]

[^{F11}“Deactivation Regulation’ means [Commission Implementing Regulation \(EU\) 2015/2403](#) establishing common guidelines on deactivation standards and techniques for ensuring that deactivated firearms are rendered irreversibly inoperable;]

“development” means all stages prior to “production” (e.g. design, design research, design analyses, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into goods or “software”, configuration design, integration design, layouts);

[^{F12}“digital computer” means equipment which can, in the form of one or more discrete variables, perform all of the following:

- accept data,
- store data or instructions in fixed or alterable (writable) storage,
- process data by means of a stored sequence of instructions which is modifiable, and
- provide output of data;

Technical Note:

Modifications of a stored sequence of instructions include replacement of fixed storage devices, but not a physical change in wiring or interconnections;]

“end-effectors” means grippers, active tooling units (i.e. devices for applying motive power, process energy or sensing to the workpiece) and any other tooling that is attached to the baseplate on the end of a “robot” manipulator arm

“energetic materials” means substances or mixtures that react chemically to release energy required for their intended application; “explosives”, “pyrotechnics” and “propellants” are sub-classes of energetic materials;

[^{F13}“equivalent standards” means comparable national or international standards recognised by one or more Wassenaar Arrangement “participating states” and applicable to the relevant entry;]

“explosives” means solid, liquid or gaseous substances or mixtures of substances which, in their application as primary, booster, or main charges in warheads, demolition and other applications, are required to detonate;

“expression vectors” means carriers (e.g. plasmid or virus) used to introduce genetic material into host cells;

“first generation image intensifier tubes” means electrostatically focused tubes, employing input and output fibre optic or glass face plates, multi-alkali photocathodes (S-20 or S-25), but not microchannel plate amplifiers;

“fuel cell” means an electrochemical device that converts chemical energy directly into Direct Current (DC) electricity by consuming fuel from an external source;

“improvised explosive devices” means devices fabricated or intended to be placed in an improvised manner incorporating destructive, lethal, noxious, “pyrotechnic” or incendiary chemicals designed to destroy, disfigure or harass; they may incorporate military stores, but are normally devised from non-military components;

[^{F14}“laser” means an item that produces spatially and temporally coherent light through amplification by stimulated emission of radiation;]

“library” (parametric technical database) means a collection of technical information, reference to which may enhance the performance of relevant systems, equipment or components;

[^{F15}“lighter-than-air vehicles” means balloons and “airships” that rely on hot air or on lighter-than-air gases such as helium or hydrogen for their lift;]

“nuclear reactor” means the goods within or attached directly to the reactor vessel, the equipment which controls the level of power in the core, and the components which normally contain, come into direct contact with or control the primary coolant of the reactor core;

[^{F16}“participating state” means a state participating in the Wassenaar Arrangement (see www.wassenaar.org);]

“production” means all production stages (e.g. product engineering, manufacture, integration, assembly (mounting), inspection, testing, quality assurance);

“propellants” means substances or mixtures that react chemically to produce large volumes of hot gases at controlled rates to perform mechanical work;

“ [^{F17}pyrotechnics] ” means mixtures of solid or liquid fuels and oxidisers which, when ignited, undergo an energetic chemical reaction at a controlled rate intended to produce specific time delays,

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

or quantities of heat, noise, smoke, visible light or infrared radiation; pyrophorics are a subclass of “pyrotechnics”, which contain no oxidisers but ignite spontaneously on contact with air;

“required” as applied to “technology”, refers to only that portion of “technology” which is peculiarly responsible for achieving or exceeding the controlled performance levels, characteristics or functions. Such “required” “technology” may be shared by different goods

F18

...;

“riot control agents” means substances which under the expected conditions of use for riot control purposes, produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure;

Technical Note:

Tear gases are a subset of “riot control agents”.

“robot” means a manipulation mechanism, which may be of the continuous path or of the point-to-point variety, may use sensors, and which:

- a. is multifunctional;
- b. is capable of positioning or orienting material, parts, tools or special devices through variable movements in three dimensional space;
- c. incorporates three or more closed or open loop servo-devices which may include stepping motors; and
- d. has “user-accessible programmability” by means of the teach/playback method or by means of an electronic computer which may be a programmable logic controller, i.e. without mechanical intervention;

Note:

This definition does not include:

- a. *manipulation mechanisms which are only manually/teleoperator controllable;*
- b. *fixed sequence manipulation mechanisms, which are automated moving devices, operating according to “programmes” where the motions are limited by fixed stops, such as pins or cams and the sequence of motions and the selection of paths or angles are not variable or changeable by mechanical, electronic or electrical means;*
- c. *mechanically controlled variable sequence manipulation mechanisms, which are automated moving devices, operating according to “programmes” where the motions are limited by fixed, but adjustable stops, such as pins or cams and the sequence of motions and the selection of paths or angles are variable within the fixed programme pattern; variations or modifications of the programme pattern (such as changes of pins or exchanges of cams) in one or more motion axes are accomplished only through mechanical operations;*
- d. *non-servo-controlled variable sequence manipulation mechanisms, which are automated moving devices, operating according to mechanically fixed programmed motions; the “programme” is variable but the sequence proceeds only by the binary signal from mechanically fixed electrical binary devices or adjustable stops;*
- e. *stacker cranes defined as Cartesian coordinate manipulator systems manufactured as an integral part of a vertical array of storage bins and designed to access the contents of those bins for storage or retrieval.*

F19

...

[^{F20}“satellite navigation system” means a system consisting of ground stations, a constellation of satellites, and receivers, that enables receiver locations to be calculated on the basis of signals received from the satellites. It includes global navigation satellite systems and regional navigation satellite systems;]

“spacecraft” means active and passive satellites and space probes;

F21

...

“superconductive” in relation to materials (e.g. metals, alloys or compounds) means those which can lose all electrical resistance (i.e. which can attain infinite electrical conductivity and carry very large electrical currents without Joule heating); the superconductive state of a material is individually characterised by a ‘critical temperature’, a critical magnetic field, which is a function of temperature, and a critical current density which is a function of both magnetic field and temperature;

Technical Note:

‘Critical temperature’ (also known as the transition temperature) of a specific “superconductive” material means the temperature at which the specific material loses all resistance to the flow of direct electrical current.

“technology” means specific ‘information’ necessary for the “development”; “production” or “use” of goods or “software”;

Technical Note:

‘Information’ may take forms including, not limited to: blueprints, plans, diagrams, models, formulae, tables, ‘source code’, engineering designs and specifications, manuals and instructions written or recorded on other media or devices (e.g. disk, tape, read-only memories);

‘source code’ (or source language) is a convenient expression of one or more processes which may be turned by a programming system into equipment executable form.

“Unmanned Aerial Vehicle” (“UAV”) means any “aircraft” capable of initiating flight and sustaining controlled flight and navigation without any human presence on board;

“use” means operation, installation (e.g. on-site installation), maintenance, checking, repair, overhaul and refurbishing;

“user-accessible programmability” means the facility allowing a user to insert, modify or replace “programmes” by means other than:

Ⓐ physical change in writing or interconnections; or

Ⓑ the setting of function controls including entry of parameters;

[^{F22}“vulnerability disclosure” means the process of identifying, reporting, or communicating a vulnerability to, or analysing a vulnerability with, individuals or organisations responsible for conducting or coordinating remediation for the purpose of resolving the vulnerability].

Textual Amendments

- F7 Words in Sch. 2 omitted (5.3.2018) by virtue of [The Export Control \(Amendment\) Order 2018 \(S.I. 2018/165\)](#), arts. 1, **3(2)(a)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- F8** Words in Sch. 2 inserted (13.7.2017) by The Export Control (Amendment) (No. 3) Order 2017 (S.I. 2017/697), arts. 1, **2(2)(a)**
- F9** Words in Sch. 2 inserted (5.3.2018) by The Export Control (Amendment) Order 2018 (S.I. 2018/165), arts. 1, **3(2)(b)**
- F10** Words in Sch. 2 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(3)(a)**
- F11** Words in Sch. 2 substituted (1.3.2019) by The Export Control (Amendment) (EU Exit) Regulations 2019 (S.I. 2019/137), regs. 2, **4(31)**
- F12** Words in Sch. 2 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(3)(b)**
- F13** Words in Sch. 2 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(3)(c)**
- F14** Words in Sch. 2 substituted (13.7.2017) by The Export Control (Amendment) (No. 3) Order 2017 (S.I. 2017/697), arts. 1, **2(2)(b)**
- F15** Words in Sch. 2 substituted (13.7.2017) by The Export Control (Amendment) (No. 3) Order 2017 (S.I. 2017/697), arts. 1, **2(2)(c)**
- F16** Words in Sch. 2 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(3)(d)**
- F17** Word in Sch. 2 substituted (13.7.2017) by The Export Control (Amendment) (No. 3) Order 2017 (S.I. 2017/697), arts. 1, **2(2)(d)**
- F18** Words in Sch. 2 omitted (30.6.2019) by virtue of The Export Control (Amendment) Order 2019 (S.I. 2019/989), arts. 1, **2(5)(a)**
- F19** Words in Sch. 2 omitted (13.7.2017) by virtue of The Export Control (Amendment) (No. 3) Order 2017 (S.I. 2017/697), arts. 1, **2(2)(e)**
- F20** Words in Sch. 2 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(3)(e)**
- F21** Words in Sch. 2 omitted (3.11.2022) by virtue of The Export Control (Amendment) (No. 2) Order 2022 (S.I. 2022/1042), arts. 1, **3(2)**
- F22** Words in Sch. 2 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(3)(f)**

Military, Security and Para-military Goods, Software and Technology and Arms, Ammunition and Related Material

- ML1** Smooth-bore weapons with a calibre of less than 20 mm, other firearms and automatic weapons with a calibre of 12.7 mm (calibre 0.50 inches) or less and accessories, as follows, and specially designed components therefor:

[^{F23}N.B.: Weapons using non-centre fire (e.g. rimfired) cased ammunition and which are not of the fully automatic firing type are specified in PL9010.a. or PL9011.a. of Schedule 3.]

Note: ML1 does not control:

- a. Firearms specially designed for dummy ammunition and which are incapable of discharging a projectile;*
- b. Firearms specially designed to launch tethered projectiles, having no high explosive charge or communications link, to a range of 500 m or less;*
- c. Firearms to which the “Deactivation Regulation” applies which have been deactivated and marked in accordance with the technical specifications set out in Annexes I and II to that Regulation;*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

d. *Firearms to which the “Deactivation Regulation” does not apply which bear a mark and are certified as having been rendered incapable of discharging any shot, bullet or other missile in accordance with section 8 of the Firearms (Amendment) Act 1988 .*

^[F24]e. *Weapons using non-centre fire (e.g. rimfired) cased ammunition and which are not of the fully automatic firing type.]*

a. Rifles and combination guns, handguns, machine, sub-machine and volley guns;

^[F25]N.B.: *Rifles and combination guns, manufactured earlier than 1938 are specified in PL9010.a. and PL9011.a. of Schedule 3.]*

Note: *ML1.a. does not control:*

a. *Bayonets;*

b. ^[F26]*Rifles and combination guns manufactured earlier than 1938;]*

c. *Reproductions of rifles and combination guns, the originals of which were manufactured earlier than 1890;*

d. *Handguns, volley guns and machine guns, manufactured earlier than 1890, and their reproductions;*

e. *Rifles or handguns, specially designed to discharge an inert projectile by compressed air or CO₂*^[F27];

f. *Handguns specially designed for any of the following:*

1. *slaughtering of domestic animals; or*

2. *tranquilising of animals.]*

b. *Smooth-bore weapons as follows:*

N.B.1.: ^[F28]Smooth-bore weapons manufactured earlier than 1938 are specified in PL9010.a. and PL9011.a. of Schedule 3.

N.B.2.: Smooth-bore weapons manufactured in 1938 or later are specified in PL9010.a. and PL9011.a. of Schedule 3 provided they are not specifically designed for military use or of the fully automatic type.]

1. *Smooth-bore weapons specially designed for military use;*

2. ^[F29]*Fully automatic smooth-bore weapons not controlled by ML1.b.1.;*]

Note: *ML1.b. does not control:*

a. ^[F30]*Smooth-bore weapons manufactured earlier than 1938;]*

b. *Reproductions of smooth-bore weapons, the originals of which were manufactured earlier than 1890;*

c. *Smooth-bore weapons, specially designed for any of the following;*

1. *Slaughtering of domestic animals;*

2. *Tranquilising of animals;*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

3. *Seismic testing;*
 4. *Firing of industrial projectiles;*
 - d. *Signal pistols;*
 - e. *Industrial Tools;*
 - f. *Smooth-bore weapons that are both not specially designed for military use and specially designed to discharge an inert projectile by compressed air or CO₂.*
- c. Weapons using caseless ammunition;
- [^{F31}d. Accessories designed for firearms specified in ML1.a., ML1.b. or ML1.c., as follows:
1. Detachable cartridge magazines;
 2. Sound suppressors or moderators;
 3. ‘Gun-mountings’;
- Technical Note:*
- For the purposes of ML1.d.3., a ‘gun-mounting’ is a fixture designed to mount a gun onto a ground “vehicle”, “aircraft”, “vessel” or structure.*
4. Flash suppressors;
 5. Optical weapon-sights with electronic image processing;
 6. Optical weapon-sights specially designed for military use.]

Textual Amendments

- F23** Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(i\)](#)
- F24** Words in Sch. 2 inserted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(ii\)](#)
- F25** Words in Sch. 2 inserted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(iii\)](#)
- F26** Word in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(iv\)](#)
- F27** Words in Sch. 2 inserted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, [2\(4\)](#)
- F28** Words in Sch. 2 inserted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(v\)](#)
- F29** Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(vi\)](#)
- F30** Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, [2\(3\)\(a\)\(vii\)](#)
- F31** Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, [3\(3\)](#)

ML2 Smooth-bore weapons with a calibre of 20 mm or more, other armament or weapons with a calibre greater than 12.7 mm (calibre 0.50 inches), [^{F32}accessories and projectors specially

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

designed or modified for military use], as follows, and specially designed components therefor:

F33

. . .

- a. Guns, howitzers, cannon, mortars, anti-tank weapons, projectile launchers, military flame throwers, rifles, [F34 recoilless rifles and smooth-bore weapons;]

[F35 N.B.1.: Rifles, smooth-bore weapons and combination guns, manufactured earlier than 1938 are specified in PL9010.a. and PL9011.a. of Schedule 3.

N.B.2.: Smooth-bore weapons that are manufactured in 1938 or later are specified in PL9010.a. and PL9011.a. of Schedule 3, provided they are not specially designed for military use or not of the fully automatic firing type.]

Note: ML2.a. does not control:

- a. *[F36 Rifles, smooth-bore weapons and combination guns, manufactured earlier than 1938;]*
- b. *Reproductions of rifles, smooth-bore weapons and combination guns, the originals of which were manufactured earlier than 1890;*
- c. *Guns, howitzers, cannons, mortars, manufactured earlier than 1890;*
- d. *Smooth-bore weapons specially designed for any of the following:*
 1. *Slaughtering of domestic animals;*
 2. *Tranquilising of animals;*
 3. *Seismic testing;*
 4. *Firing of industrial projectiles;*
- e. *Signal pistols;*
- f. *Hand-held projectile launchers, specially designed to launch tethered projectiles, having no high explosive charge or communications link, to a range of 500 m or less.*
- [F37 g. Smooth-bore weapons that are not of the following:*
 1. *Specially designed for military use; or*
 2. *Fully Automatic firing type]*

- b. [F38 The following types of projectors, when specially designed or modified for military use:

1. Smoke canister projectors;
2. Gas canister projectors;
3. Pyrotechnics projectors.

Note: ML2.b. does not control signal pistols.]

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- c. [^{F39}Accessories specially designed for the weapons specified in ML2.a., as follows:
1. Weapon sights and weapon sight mounts, specially designed for military use;
 2. Signature reduction devices;
 3. Mountings;
 4. Detachable cartridge magazines.]
- d. ^{F40}
 . . .

Textual Amendments

- F32** Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(6)**
- F33** Words in Sch. 2 deleted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(b)(i)**
- F34** Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(7)**
- F35** Words in Sch. 2 inserted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(b)(ii)**
- F36** Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(b)(iii)(aa)**
- F37** Words in Sch. 2 inserted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(b)(iii)(bb)**
- F38** Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(8)**
- F39** Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(9)**
- F40** Words in Sch. 2 omitted (7.6.2021) by virtue of [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(10)**

- ML3** Ammunition and fuze setting devices, as follows, and specially designed components therefor:

[^{F41}N.B.: Ammunition specially designed for “firearms” specified in PL9010.a. or PL9011.a. in Schedule 3 is specified in PL9010.c. or PL9011.c. in Schedule 3.]

- a. Ammunition for weapons specified in ML1, ML2 or ML12;

Note: ML3.a. does not control:

- a. *Ammunition crimped without a projectile (blank star);*
- b. *Dummy ammunition with a pierced powder chamber;*
- c. *Other blank and dummy ammunition, not incorporating components designed for live ammunition;*
- d. *Components specially designed for blank or dummy ammunition, specified in this Note a, b or c; or*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- e. Cartridges specially designed for signalling, bird scaring or lighting of gas flares at oil wells.
- b. Fuze setting devices specially designed for ammunition specified in ML3.a.

Textual Amendments

F41 Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(c)**

ML4 Bombs, torpedoes, rockets, missiles, other explosive devices and charges, and related equipment and accessories, as follows, and specially designed components therefor:

N.B. 1: Electronic guidance and navigation equipment is controlled in ML11.a.

N.B. 2: Aircraft missile protection systems are controlled in ML4.c.

[^{F42}a. Bombs, torpedoes, grenades, smoke canisters, rockets, mines, missiles, depth charges, demolition-charges, demolition-devices, demolition-kits, “pyrotechnic” devices, cartridges, submunitions therefor and simulators (i.e., equipment simulating the characteristics of any of these items), specially designed for military use;

N.B.: For grenade or canister ammunition for weapons or projectors specified in ML1. or ML2. and submunitions specially designed for ammunition, see ML3.]

b. Equipment that is both specially designed for military use and specially designed for ‘activities’ relating to any of the following:

1. goods specified in ML4.a.; or
2. “improvised explosive devices”;

Technical Note: For the [^{F43}purposes of ML4.b.] ‘activities’ applies to handling, controlling, activating, powering with one-time operational output, launching, laying, sweeping, discharging, decoying, jamming, detonating, disrupting, detecting or disposing.

Note: ML4.b. does not control hand-held devices limited by design solely to the detection of metal objects and incapable of distinguishing between mines and other metal objects.

c. Aircraft missile protection systems [^{F44}(AMPS) not specified in ML4.b.1..]

Textual Amendments

F42 Words in Sch. 2 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(2)**

F43 Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(a)**

F44 Words in Sch. 2 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(3)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- ML5** [^{F45}Fire control, surveillance and warning equipment, and related systems, test and alignment and countermeasure equipment, as follows, specially designed for military use, and specially designed components and accessories therefor:]
- a. Weapon sights, bombing computers, gun laying equipment and weapon control systems;
 - [^{F46}b. Other fire control, surveillance and warning equipment, and related systems, as follows:
 1. Target acquisition, designation, range-finding, surveillance or tracking systems;
 2. Detection, recognition or identification equipment;
 3. Data fusion or sensor integration equipment;]
 - c. Countermeasure equipment for goods specified in ML5.a. or ML5.b.;
Note: For the purposes of ML5.c. countermeasure equipment includes detection equipment.
 - d. Field test or alignment equipment, specially designed for goods specified in ML5.a., ML5.b. or ML5.c.

Textual Amendments

- F45** Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(4)**
- F46** Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(5)**

- ML6** Ground “vehicles” and components as follows:
- [^{F47}N.B.:] *Electronic guidance and navigation equipment is controlled in ML11.a.*
- a. Ground “vehicles” and components therefor, specially designed or modified for military use;
 F48
 . . .
^{F49}Note 1: *ML6.a. includes trailers.*
 Note 2: *In ML6.a. modification of a ground “vehicle” for military use entails a structural, electrical or mechanical change involving one or more specially designed military components.]*
 - b. Other ground “vehicles” and components, as follows:
 1. “Vehicles” having all of the following:
 - [^{F50}a. manufactured or fitted with materials or components to provide ballistic protection equal to or better than level III (NIJ 0108.01, September 1985) or “equivalent standards”];
 - b. a transmission to provide drive to both front and rear wheels simultaneously, including those vehicles having additional wheels for load bearing purposes whether driven or not;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- c. ‘Gross Vehicle Weight Rating (GVWR)’ greater than 4,500 kg; and
 - d. designed or modified for off-road use;
2. Components meeting both of the following descriptions:
- a. specially designed for “vehicles” specified in ML6.b.1.; and
 - [^{F51}b. providing ballistic protection equal to or better than level III (NIJ 0108.01, September 1985) or “equivalent standards”];

Technical Notes:

- 1. NIJ 0108.01 means the National Institute of Justice standard for Ballistic Resistance for Protective Materials.
- 2. ‘Gross Vehicle Weight Rating (GVWR)’ is also known as Maximum Authorised Mass, Gross Vehicle Weight or Permissible Maximum Weight.

N.B.: See also ML13.a. for armoured plate.

Note 1: ML6.b. does not control “vehicles” designed or modified for transporting money or valuables .

Note 2: ML6.b. does not control “vehicles” fitted with, or designed or modified to be fitted with, a plough, flail or tiller for the purpose of land mine clearance.

Note 3: ML6 does not control “vehicles” that meet all of the following descriptions:

- a. were manufactured before 1946;
- b. do not have items specified in this Schedule and manufactured after 1945, except for reproductions of original components or accessories for the vehicle; and
- c. do not incorporate weapons specified in ML1, ML2 or ML4 unless they are inoperable and incapable of discharging a projectile, including:
 - 1. in the case of firearms to which the “Deactivation Regulation” applies, by having been deactivated and marked in accordance with the technical specifications set out in Annexes I and II to that Regulation;
 - 2. in the case of firearms to which the “Deactivation Regulation” does not apply, by bearing a mark and being certified as having been rendered incapable of discharging any shot, bullet or other missile in accordance with section 8 of the Firearms (Amendment) Act 1988.

Textual Amendments

F47 Word in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(6)**

F48 Words in Sch. 2 omitted (3.11.2022) by virtue of [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(7)(a)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- F49** Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(7)(b)**
- F50** Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(11)**
- F51** Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(12)**

ML7 [^{F52}Chemical agents, “biological agents”, toxic chemicals and mixtures containing such agents or chemicals, “riot control agents”, radioactive materials, related equipment, components and materials, as follows:]

Note: *In some instances chemicals are listed by name and Chemical [^{F53}Abstracts] Service (CAS) number. Chemicals of the same structural formula [^{F54}(e.g. hydrates, isotopically-labelled forms or all possible stereoisomers)] are controlled regardless of name or CAS number. CAS numbers are shown to assist in identifying whether a particular chemical or mixture is controlled, irrespective of nomenclature. CAS numbers cannot be used as unique identifiers because some forms of the listed chemical have different CAS numbers, and mixtures containing a listed chemical may also have different CAS numbers.*

- a. [^{F55}“Biological agents” or radioactive materials selected or modified to increase their effectiveness in producing casualties in humans or animals, degrading equipment or damaging crops or the environment;]
- b. Chemical warfare (CW) agents including, but not limited to, the following:
 1. CW nerve agents:
 - a. O-Alkyl (equal to or less than C₁₀, including cycloalkyl) alkyl (Methyl, Ethyl, n-Propyl or Isopropyl)-phosphonofluoridates, such as:

Sarin (GB):O-Isopropyl methylphosphonofluoridate (CAS 107-44-8); and

Soman (GD):O-Pinacolyl methylphosphonofluoridate (CAS 96-64-0);
 - b. O-Alkyl (equal to or less than C₁₀, including cycloalkyl) N,N-dialkyl (Methyl, Ethyl, n-Propyl or Isopropyl) phosphoramidocyanidates, such as:

Tabun (GA):O-Ethyl N,N-dimethylphosphoramidocyanidate (CAS 77-81-6);
 - c. O-Alkyl (H or equal to or less than C₁₀, including cycloalkyl) S-2-dialkyl (Methyl, Ethyl, n-Propyl or Isopropyl)-aminoethyl alkyl (Methyl, Ethyl, n-Propyl or Isopropyl) phosphonothiolates and corresponding alkylated and protonated salts, such as:

VX: O-Ethyl S-2-diisopropylaminoethyl methyl phosphonothiolate (CAS 50782-69-9);
 2. CW vesicant agents:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- a. Sulphur mustards, such as:
 1. 2-Chloroethylchloromethylsulphide (CAS 2625-76-5);
 2. Bis(2-chloroethyl) sulphide (CAS 505-60-2);
 3. Bis(2-chloroethylthio) methane (CAS 63869-13-6);
 4. 1,2-bis (2-chloroethylthio) ethane (CAS 3563-36-8);
 5. 1,3-bis (2-chloroethylthio)-n-propane (CAS 63905-10-2);
 6. 1,4-bis (2-chloroethylthio)-n-butane (CAS 142868-93-7);
 7. 1,5-bis (2-chloroethylthio)-n-pentane (CAS 142868-94-8);
 8. Bis (2-chloroethylthiomethyl) ether (CAS 63918-90-1);
 9. Bis (2-chloroethylthioethyl) ether (CAS 63918-89-8);
- b. Lewisites, such as:
 1. 2-chlorovinylchloroarsine (CAS 541-25-3);
 2. Tris (2-chlorovinyl) arsine (CAS 40334-70-1);
 3. Bis (2-chlorovinyl) chloroarsine (CAS 40334-69-8);
- c. Nitrogen mustards, such as:
 1. HN1: bis (2-chloroethyl) ethylamine (CAS 538-07-8);
 2. HN2: bis (2-chloroethyl) methylamine (CAS 51-75-2);
 3. HN3: tris (2-chloroethyl) amine (CAS 555-77-1);
3. CW incapacitating agents, such as:
 - a. 3-Quinuclidinyl benzilate (BZ) (CAS 6581-06-2);
4. CW defoliants, such as:
 - a. Butyl 2-chloro-4-fluorophenoxyacetate (LNF);
 - b. 2,4,5-trichlorophenoxyacetic acid (CAS 93-76-5) mixed with 2,4-dichlorophenoxyacetic acid (CAS 94-75-7) (Agent Orange (CAS 39277-47-9));
- c. CW binary precursors and key precursors, as follows, and chemical mixtures containing one or more of these precursors:
 1. Alkyl (Methyl, Ethyl, n-Propyl or Isopropyl) Phosphonyl Difluorides, such as:

DF: Methyl Phosphonyldifluoride (CAS 676-99-3);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

2. O-Alkyl (H equal to or less than C₁₀, including cycloalkyl) O-2-dialkyl (Methyl, Ethyl, n-Propyl or Isopropyl)-aminoethyl alkyl (Methyl, Ethyl, n-Propyl or Isopropyl) phosphonites and corresponding alkylated and protonated salts, such as:
 QL: O-Ethyl O-2-di-isopropylaminoethyl methylphosphonite (CAS 57856-11-8);
 3. Chlorosarin: O-Isopropyl methylphosphonochloridate (CAS 1445-76-7);
 4. Chlorosoman: O-Pinacolyl methylphosphonochloridate (CAS 7040-57-5);
- d. “Riot control agents”, active constituent chemicals and combinations thereof including:
1. α-Bromobenzeneacetonitrile, (Bromobenzyl cyanide) (CA) (CAS 5798-79-8);
 2. [(2-chlorophenyl) methylene] propanedinitrile, (o-Chlorobenzylidenemalononitrile) (CS) (CAS 2698-41-1);
 3. 2-Chloro-1-phenylethanone, Phenylacetyl chloride (ω-chloroacetophenone) (CN) (CAS 532-27-4);
 4. Dibenz-(b,f)-1,4-oxazephine (CR) (CAS 257-07-8);
 5. 10-Chloro-5,10-dihydrophenarsazine, (Phenarsazine chloride), (Adamsite), (DM) (CAS 578-94-9);
 6. N-Nonanoylmorpholine, (MPA) (CAS 5299-64-9);
- Note 1:* ML7.d. does not control “riot control agents” individually packaged for personal self-defence purposes.
- Note 2:* ML7.d. does not control active constituent chemicals and combinations thereof identified and packaged for food production or medical purposes.
- e. Equipment specially designed or modified for military use, designed or modified for the dissemination of any of the following, and specially designed components therefor:
1. Materials or agents specified in ML7.a., ML7.b. or ML7.d.;
 2. CW agents made up of precursors specified in ML7.c.;
- f. Protective and decontamination goods, specially designed or modified for military use, components and chemical mixtures as follows:
1. Goods designed or modified for defence against materials specified in ML7.a., ML7.b. or ML7.d. and specially designed components therefor;
N.B.: See also 1A of Annex I to “the dual-use Regulation”.
 2. Goods designed or modified for decontamination of goods contaminated with materials specified in ML7.a. or ML7.b. and specially designed components therefor;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

3. Chemical mixtures specially developed or formulated for the decontamination of goods contaminated with materials specified in ML7.a. or ML7.b.;
- g. Goods specially designed or modified for military use, designed or modified for the detection or identification of materials specified in ML7.a., ML7.b. or ML7.d. and specially designed components therefor;

N.B.: See also 1A of Annex I to “the dual-use Regulation”.

Note: ML7.g. does not control personal radiation monitoring dosimeters.

- h. “Biopolymers” specially designed or processed for the detection or identification of CW agents specified in ML7.b., and the cultures of specific cells used to produce them;
- i. “Biocatalysts” for the decontamination or degradation of CW agents, and biological systems therefor, as follows:

1. “Biocatalysts” specially designed for the decontamination or degradation of CW agents specified in ML7.b., and resulting from directed laboratory selection or genetic manipulation of biological systems;
2. Biological systems containing the genetic information specific to the “production” of “biocatalysts” specified in ML7.i.1. as follows:
 - a. “Expression vectors”;
 - b. Viruses;
 - c. Cultures of cells.

Note 1: ML7.b. and ML7.d. do not control:

- a. Cyanogen chloride (CAS 506-77-4);
N.B.: See 1C of Annex I to “the dual-use Regulation”.
- b. Hydrocyanic acid (CAS 74-90-8);
- c. Chlorine (CAS 7782-50-5);
- d. Carbonyl chloride (phosgene) (CAS 75-44-5);
N.B.: See 1C of Annex I to “the dual-use Regulation”.
- e. Diphosgene (trichloromethyl-1-chloroformate) (CAS 503-38-8);
- f. This entry is not used;
- g. Xylyl bromide: ortho: (CAS 89-92-9), meta: (CAS 620-13-3), para: (CAS 104-81-4);
- h. Benzyl bromide (CAS 100-39-01);
- i. Benzyl iodide (CAS 620-05-3);
- j. Bromo acetone (CAS 598-31-2);
- k. Cyanogen bromide (CAS 506-68-3);
- l. Bromo methylethylketone (CAS 816-40-0);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- m. Chloro acetone (CAS 78-95-5);
- n. Ethyl iodoacetate (CAS 623-48-3);
- o. Iodo acetone (CAS 3019-04-3);
- p. Chloropicrin (CAS 76-06-2);
- N.B.: See IC of Annex I to “the dual-use Regulation”.
- q. Pelargonic acid vanillylamide (PAVA) (CAS 2444-46-4);
- N.B.: See 3.2. of Annex III to “the torture Regulation”.
- r. Oleoresin capsicum (OC) (CAS 8023-77-6).
- N.B.: See 3.3. of Annex III to “the torture Regulation”.

Note 2: The cultures of cells and biological systems specified in ML7.h. and ML7.i.2. are exclusive and ML7.h. and ML7.i.2. do not include cells or biological systems for civil purposes, (e.g. agricultural, pharmaceutical, medical, veterinary, environmental, waste management, or in the food industry).

Textual Amendments

- F52** Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(d)**
- F53** Word in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(b)(i)**
- F54** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(b)(ii)**
- F55** Words in Sch. 2 substituted (5.3.2018) by [The Export Control \(Amendment\) Order 2018 \(S.I. 2018/165\)](#), arts. 1, **3(4)**

ML8 “Energetic materials”, and related substances, as follows:

N.B.: Charges and devices are controlled in ML4 and IA008 of Annex I to “the dual-use Regulation”.

Note: In some instances chemicals are listed by name and Chemical ^[F56]Abstracts] Service (CAS) number. Chemicals of the same structural formula ^[F57](e.g. hydrates, isotopically-labelled forms or all possible stereoisomers) are controlled regardless of name or CAS number. CAS numbers are shown to assist in identifying whether a particular chemical or ‘mixture’ is controlled, irrespective of nomenclature. CAS numbers cannot be used as unique identifiers because some forms of the listed chemical have different CAS numbers, and ‘mixtures’ containing a listed chemical may also have different CAS numbers.

- Technical Note:
- ^[F58]For the purposes of ML8, excluding ML8.c.11. and ML8.c.12., a ‘mixture’ refers to a composition of two or more substances with at least one substance being controlled in ML8.
 - ^[F59]For the purposes of ML8, particle size is] the mean particle diameter on a weight or volume basis. International

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

or equivalent national standards will be used in sampling and determining particle size.

- a. “Explosives”, as follows, and ‘mixtures’ thereof:
1. ADNBF (aminodinitrobenzofuroxan or 7-amino-4,6-dinitrobenzofurazane-1-oxide) (CAS 97096-78-1);
 2. BNCP (cis-bis (5-nitrotetrazolato) tetra amine-cobalt (III) perchlorate) (CAS 117412-28-9);
 3. CL-14 (diamino dinitrobenzofuroxan or 5,7-diamino-4,6-dinitrobenzofurazane-1-oxide) (CAS 117907-74-1);
 4. CL-20 (HNIW or Hexanitrohexaazaisowurtzitane) (CAS 135285-90-4); chlathrates of CL-20;
 5. CP (2-(5-cyanotetrazolato)penta amine-cobalt (III) perchlorate) (CAS 70247-32-4);
 6. DADE (1,1-diamino-2,2-dinitroethylene, [^{F60}FOX-7]) (CAS 145250-81-3);
 7. DATB (diaminotrinitrobenzene) (CAS 1630-08-6);
 8. DDFP (1,4-dinitrodifurazanopiperazine);
 9. DDPO (2,6-diamino-3,5-dinitropyrazine-1-oxide, PZO) (CAS 194486-77-6);
 10. DIPAM (3,3'-diamino-2,2',4,4',6,6'-hexanitrobiphenyl or dipicramide) (CAS 17215-44-0);
 11. DNGU (DINGU or dinitroglycoluril) (CAS 55510-04-8);
 12. Furazans as follows:
 - a. DAAOF (DAAF, DDAFox, or diaminoazoxyfurazan);
 - b. DAAzF (diaminoazofurazan) (CAS 78644-90-3);
 13. HMX and derivatives as follows:
 - a. HMX (Cyclotetramethylenetetranitramine, octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazine, 1,3,5,7-tetranitro-1,3,5,7-tetraza-cyclooctane, octogen or octogene) (CAS 2691-41-0);
 - b. difluoroaminated analogs of HMX;
 - c. K-55 (2,4,6,8-tetranitro-2,4,6,8-tetraazabicyclo-[3,3,0]-octanone-3, tetranitrosemiglycouril or keto-bicyclic HMX) (CAS 130256-72-3);
 14. HNAD (hexanitroadamantane) (CAS 143850-71-9);
 15. HNS (hexanitrostilbene) (CAS 20062-22-0);
 16. Imidazoles as follows:
 - a. BNNII (Octahydro-2,5-bis(nitroimino)imidazo [4,5-d]imidazole);
 - b. DNI (2,4-dinitroimidazole) (CAS 5213-49-0);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- c. FDIA (1-fluoro-2,4-dinitroimidazole);
 - d. NTDNIA (N-(2-nitrotriazolo)-2,4-dinitroimidazole);
 - e. PTIA (1-picryl-2,4,5-trinitroimidazole);
17. NTNMH (1-(2-nitrotriazolo)-2-dinitromethylene hydrazine);
 18. NTO (ONTA or 3-nitro-1,2,4-triazol-5-one) (CAS 932-64-9);
 19. Polynitrocubanes with more than four nitro groups;
 20. PYZ (2,6-bis(picrylamino)-3,5-dinitropyridine) (CAS 38082-89-2);
 21. RDX and derivatives as follows:
 - a. RDX (cyclotrimethylenetrinitramine, cyclonite, T4, hexahydro-1,3,5-trinitro-1,3,5-triazine, 1,3,5-trinitro-1,3,5-triaza-cyclohexane, hexogen or hexogene) (CAS 121-82-4);
 - b. Keto-RDX (K-6 or 2,4,6-trinitro-2,4,6-triazacyclohexanone) (CAS 115029-35-1);
 22. TAGN (triaminoguanidinenitrate) (CAS 4000-16-2);
 23. TATB (triaminotrinitrobenzene) (CAS 3058-38-6);
 24. TEDDZ (3,3,7,7-tetrabis(difluoroamine) octahydro-1,5-dinitro-1,5-diazocine);
 25. Tetrazoles as follows:
 - a. NTAT (nitrotriazol aminotetrazole);
 - b. NTNT (1-N-(2-nitrotriazolo)-4-nitrotetrazole);
 26. Tetryl (trinitrophenylmethylnitramine) (CAS 479-45-8);
 27. TNAD (1,4,5,8-tetranitro-1,4,5,8-tetraazadecalin) (CAS 135877-16-6);
 28. TNAZ (1,3,3-trinitroazetidine) (CAS 97645-24-4);
 29. TNGU (SORGUYL or tetranitroglycoluril) (CAS 55510-03-7);
 30. TNP (1,4,5,8-tetranitro-pyridazino[4,5-d]pyridazine) (CAS 229176-04-9);
 31. Triazines as follows:
 - a. DNAM (2-oxy-4,6-dinitroamino-s-triazine) (CAS 19899-80-0);
 - b. NNHT (2-nitroimino-5-nitro-hexahydro-1,3,5-triazine) (CAS 130400-13-4);
 32. Triazoles as follows:
 - a. 5-azido-2-nitrotriazole;
 - b. ADHTDN (4-amino-3,5-dihydrazino-1,2,4-triazole dinitramide) (CAS 1614-08-0);
 - c. ADNT (1-amino-3,5-dinitro-1,2,4-triazole);
 - d. BDNTA ((bis-dinitrotriazole)amine);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- e. DBT (3,3'-dinitro-5,5-bi-1,2,4-triazole) (CAS 30003-46-4);
 - f. DNBT (dinitrobistriazole) (CAS 70890-46-9);
 - g. This entry is not used.
 - h. NTDNT (1-N-(2-nitrotriazolo)-3,5-dinitrotriazole);
 - i. PDNT (1-picryl-3,5-dinitrotriazole);
 - j. TACOT (tetranitrobenzotriazolobenzotriazole) (CAS 25243-36-1);
33. "Explosives" not listed elsewhere in ML8.a. and meeting any of the following descriptions:
- a. Detonation velocity exceeding 8,700 m/s at maximum density or
 - b. Detonation pressure exceeding 34 GPa (340 kbar)
34. This entry is not used;
35. DNAN (2,4-dinitroanisole) (CAS 119-27-7);
36. TEX (4,10-Dinitro-2,6,8,12-tetraoxa-4,10-diazaisowurtzitane);
37. GUDN (Guanylurea dinitramide) FOX-12 (CAS 217464-38-5);
38. Tetrazines as follows:
- a. BTAT (Bis(2,2,2-trinitroethyl)-3,6-diaminotetrazine);
 - b. LAX-112 (3,6-diamino-1,2,4,5-tetrazine-1,4-dioxide);
39. Energetic ionic materials melting between 343 K (70°C) and 373 K (100°C) and with detonation velocity exceeding 6,800 m/s or detonation pressure exceeding 18 GPa (180 kbar);
- [^{F61}40. BTNEN (Bis(2,2,2-trinitroethyl)-nitramine) (CAS 19836-28-3);
- [^{F62}41. FTDO (5,6-(3',4'-furazano)-1,2,3,4-tetrazine-1,3-dioxide);]
- [^{F63}42. EDNA (Ethylenedinitramine) (CAS 505-71-5);]
- [^{F64}43. TKX-50 (Dihydroxylammonium 5,5'-bistetrazole-1,1'-diolate).]

Note: ML8.a. includes 'explosive co-crystals'.

Technical Note: [^{F65}For the purposes of ML8.a., an 'explosive co-crystal' is a solid material consisting of an ordered three dimensional arrangement of two or more explosive molecules, where at least one is specified in ML8.a.]

- b. "Propellants" as follows:
 - 1. Any solid "propellant" with a theoretical specific impulse (under standard conditions) of more than:
 - a. 240 seconds for non-metallised, non-halogenised "propellant";
 - b. 250 seconds for non-metallised, halogenised "propellant";
 - c. 260 seconds for metallised "propellant";

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

2. This entry is not used;
 3. “Propellants” having a force constant of more than 1,200 kJ/kg;
 4. “Propellants” that can sustain a steady-state linear burning rate of more than 38 mm/s under standard conditions (as measured in the form of an inhibited single strand) of 6.89 MPa (68.9 bar) pressure and 294 K (21°C);
 5. Elastomer Modified Cast Double Base (EMCDB) “propellants” with extensibility at maximum stress of more than 5% at 233 K (-40°C);
 6. Any “propellant” containing substances specified in ML8.a.;
 7. “Propellants” not specified elsewhere in this Schedule, specially designed for military use.
- c. “Pyrotechnics”, fuels and related substances, as follows, and ‘mixtures’ thereof:
1. [^{F66}“Aircraft” fuels specially formulated for military purposes;]
[^{F67}Note 1: ML8.c.1. does not [^{F68}control] the following “aircraft” fuels: JP-4, JP-5, and JP-8.

Note 2: “Aircraft” fuels controlled in ML8.c.1. are finished goods, not their constituents.]
 2. Alane (aluminium hydride) (CAS 7784-21-6);
 3. [^{F69}Boranes, as follows, and their derivatives:
 - a. Carboranes;
 - b. Borane homologues, as follows:
 1. Decaborane (14) (CAS 17702-41-9);
 2. Pentaborane (9) (CAS 19624-22-7);
 3. Pentaborane (11) (CAS 18433-84-6);]
 4. Hydrazine and derivatives as follows (see also ML8.d.8. and ML8.d.9. for oxidising hydrazine derivatives);
 - a. Hydrazine (CAS 302-01-2) in concentrations of 70% or more;
Note: ML8.c.4.a. does not control hydrazine ‘mixtures’ specially formulated for corrosion control.
 - b. Monomethyl hydrazine (CAS 60-34-4);
 - c. Symmetrical dimethyl hydrazine (CAS 540-73-8);
 - d. Unsymmetrical dimethyl hydrazine (CAS 57-14-7);
 5. [^{F70}Metal fuels, fuel ‘mixtures’ or “pyrotechnic” mixtures, in particle form whether spherical, atomised, spheroidal, flaked or ground, manufactured from material consisting of 99% or more of any of the following:
 - a. Metals as follows and ‘mixtures’ thereof:
 1. Beryllium (CAS 7440-41-7) in particle sizes of less than 60µm;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

2. Iron powder (CAS 7439-89-6) with particle size of 3µm or less produced by reduction of iron oxide with hydrogen;
- b. 'Mixtures' containing any of the following:
 1. Zirconium (CAS 7440-67-7), magnesium (CAS 7439-95-4) or alloys of these in particle sizes of less than 60µm;
 2. Boron (CAS 7440-42-8) or boron carbide (CAS 12069-32-8) fuels of 85% purity or higher and particle sizes of less than 60µm;

Note 1: ML8.c.5.b.2 does not control boron and boron carbide enriched with boron-10 (20% or more of total boron-10 content).

Note 2: ML8.c.5.b. only controls metal fuels in particle form when they are mixed with other substances to form a 'mixture' formulated for military purposes such as liquid "propellant" slurries, solid "propellants" or "pyrotechnic" mixtures.

Note 3: ML8.c.5. controls "explosives" and fuels, whether or not the metals or alloys are encapsulated in aluminium, magnesium, zirconium or beryllium.

N.B.: See also IC of Annex I to "the dual-use Regulation".J

6. Military material containing thickeners for hydrocarbon fuels specially formulated for use in flame throwers or incendiary munitions, such as metal stearates (e.g., octal (CAS 637-12-7) or palmitates;
7. Perchlorates, chlorates and chromates composited with powdered metal or other high energy fuel components;
8. Spherical or spheroidal aluminium powder (CAS 7429-90-5) with a particle size of 60µm or less, and manufactured from material with an aluminium content of 99% or more;
9. Titanium subhydride (TiH_n) of stoichiometry equivalent to n = 0.65-1.68;
10. Liquid high energy density fuels not specified in ML8.c.1., as follows:
 - a. Mixed fuels, that incorporate both solid and liquid fuels (e.g., boron slurry), having a mass-based energy density of 40 MJ/kg or greater;
 - b. Other high energy density fuels and fuel additives (e.g., cubane, ionic solutions, JP-7, JP-10), having a volume-based energy density of 37.5 GJ per cubic meter or greater, measured at 293 K (20°C) and one atmosphere (101.325 kPa) pressure;

Note: ML8.c.10.b. does not control
F71

... fossil refined fuels or biofuels, or fuels for engines certified for use in civil aviation.

11. "Pyrotechnic" and pyrophoric materials as follows:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- a. “Pyrotechnic” or pyrophoric materials specifically formulated to enhance or control the production of radiated energy in any part of the IR spectrum;
 - b. Mixtures of magnesium, polytetrafluoroethylene (PTFE) and a vinylidene difluoride- hexafluoropropylene copolymer (e.g., MTV);
12. Fuel mixtures, “pyrotechnic” mixtures or “energetic materials”, not specified elsewhere in ML8, having all of the following:
- a. Containing greater than 0.5% of particles of any of the following:
 1. Aluminium;
 2. Beryllium;
 3. Boron;
 4. Zirconium;
 5. Magnesium; or
 6. Titanium;
 - b. Particles specified in ML8.c.12.a. with a size less than 200 nm in any direction; and
 - c. Particles specified in ML8.c.12.a. with a metal content of 60% or greater;

^[F72]*Note: ML8.c.12. includes thermites.]*

- d. Oxidisers, as follows, and ‘mixtures’ thereof:
1. ADN (ammonium dinitramide or SR 12) (CAS 140456-78-6);
 2. AP (ammonium perchlorate) (CAS 7790-98-9);
 3. Compounds composed of fluorine and any of the following:
 - a. Other halogens;
 - b. Oxygen; or
 - c. Nitrogen;

Note 1: ML8.d.3. does not control chlorine trifluoride (CAS 7790-91-2).

Note 2: ML8.d.3. does not control nitrogen trifluoride in its gaseous state (CAS 7783-54-2).

^[F73]*Note 3: ML8.d.3. does not control iodine pentafluoride (CAS 7783-66-6).]*

N.B.: See also IC of Annex I to “the dual-use Regulation”.
 4. DNAD (1,3-dinitro-1,3-diazetidine) (CAS 78246-06-7);
 5. HAN (hydroxylammonium nitrate) (CAS 13465-08-2);
 6. HAP (hydroxylammonium perchlorate) (CAS 15588-62-2);
 7. HNF (hydrazinium nitroformate) (CAS 20773-28-8);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

8. Hydrazine nitrate (CAS 37836-27-4);
 9. Hydrazine perchlorate (CAS 27978-54-7);
 10. Liquid oxidisers comprised of or containing inhibited red fuming nitric acid (IRFNA) (CAS 8007-58-7);
- e. Binders, plasticisers, monomers and polymers as follows:
1. AMMO (azidomethylmethyloxetane and its polymers) (CAS 90683-29-7);
 2. BAMO (3,3-bis(azidomethyl)oxetane and its polymers) (CAS 17607-20-4);
 3. BDNPA (bis (2,2-dinitropropyl)acetal) (CAS 5108-69-0);
 4. BDNPF (bis (2,2-dinitropropyl)formal) (CAS 5917-61-3);
 5. BTTN (butanetrioltrinitrate) (CAS 6659-60-5);
 6. Energetic monomers, plasticisers or polymers specially formulated for military use and containing any of the following:
 - a. Nitro groups;
 - b. Azido groups;
 - c. Nitrate groups;
 - d. Nitraza groups; or
 - e. Difluoroamino groups;
 7. FAMA0 (3-difluoroaminomethyl-3-azidomethyl oxetane) and its polymers;
 8. FEFO (bis-(2-fluoro-2,2-dinitroethyl) formal) (CAS 17003-79-1);
 9. FPF-1 (poly-2,2,3,3,4,4-hexafluoropentane-1,5-diol formal) (CAS 376-90-9);
 10. FPF-3 (poly-2,4,4,5,5,6,6-heptafluoro-2-tri-fluoromethyl-3-oxaheptane-1,7-diol formal);
 11. GAP (glycidylazide polymer) (CAS 143178-24-9) and its derivatives;
 12. HTPB (hydroxyl terminated polybutadiene) with a hydroxyl functionality equal to or greater than 2.2 and less than or equal to 2.4, a hydroxyl value of less than 0.77 meq/g, and a viscosity at 30°C of less than 47 poise (CAS 69102-90-5);
 13. Alcohol functionalised poly(epichlorohydrin) with a molecular weight of less than 10,000, as follows:
 - a. Poly(epichlorohydrindiol); and
 - b. Poly(epichlorohydrintriol);
 14. NENAs (nitroethylnitramine compounds) (CAS 17096-47-8, 85068-73-1, 82486-83-7, 82486-82-6 and 85954-06-9);
 15. PGN (poly-GLYN, polyglycidylnitrate or poly(nitratomethyl oxirane)) (CAS 27814-48-8);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

16. Poly-NIMMO (poly [^{F74}(Nitratomethylmethyloxetane), poly-NMMO or (poly (3-Nitratomethyl-3-methyloxetane)) (CAS 84051-81-0);
17. Polynitroorthocarbonates;
18. TVOPA (1,2,3-tris[1,2-bis(difluoroamino)ethoxy] propane or tris vinoxyl propane adduct) (CAS 53159-39-0);
19. 4,5 diazidomethyl-2-methyl-1,2,3-triazole (iso- DAMTR);
20. PNO (Poly(3-nitrato oxetane));
- [^{F75}21. TMETN (Trimethylolethane trinitrate) (CAS 3032-55-1);]

f. Additives as follows:

1. Basic copper salicylate (CAS 62320-94-9);
2. BHEGA (bis-(2-hydroxyethyl) glycolamide) (CAS 17409-41-5);
3. BNO (butadienenitrileoxide);
4. Ferrocene derivatives as follows:
 - a. Butacene (CAS 125856-62-4);
 - b. Catocene (2,2-bis-ethylferrocenyl propane) (CAS 37206-42-1);
 - c. Ferrocene carboxylic acids and ferrocene carboxylic acid esters;
 - d. n-butyl-ferrocene (CAS 31904-29-7);
 - e. Other adducted polymer ferrocene derivatives not specified elsewhere in ML8.f.4.;
 - f. Ethyl ferrocene (CAS 1273-89-8);
 - g. Propyl ferrocene;
 - h. Pentyl ferrocene (CAS 1274-00-6);
 - i. Dicyclopentyl ferrocene;
 - j. Dicyclohexyl ferrocene;
 - k. Diethyl ferrocene (CAS 1273-97-8);
 - l. Dipropyl ferrocene;
 - m. Dibutyl ferrocene (CAS 1274-08-4);
 - n. Dihexyl ferrocene (CAS 93894-59-8);
 - o. Acetyl ferrocene (CAS 1271-55-2)/1,1'-diacetyl ferrocene (CAS-1273-94-5);
5. [^{F76}Lead beta-resorcylate (CAS 20936-32-7) or copper beta-resorcylate (CAS 70983-44-7)]
6. Lead citrate (CAS 14450-60-3);
7. Lead-copper chelates of beta-resorcylate or salicylates (CAS 68411-07-4);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

8. Lead maleate (CAS 19136-34-6);
9. Lead salicylate (CAS 15748-73-9);
10. Lead stannate (CAS 12036-31-6);
11. MAPO (tris-1-(2-methyl)aziridinyl phosphine oxide) (CAS 57-39-6), and BOBBA 8 (bis(2-methyl aziridinyl)-2-(2-hydroxypropanoxy) propylamino phosphine oxide); and other MAPO derivatives;
12. Methyl BAPO (bis(2-methyl aziridinyl) methylamino phosphine oxide) (CAS 85068-72-0);
13. N-methyl-p-nitroaniline (CAS 100-15-2);
14. 3-Nitroaza-1,5-pentane diisocyanate (CAS 7406-61-9);
15. Organo-metallic coupling agents as follows:
 - a. Neopentyl[diallyl]oxy, tri[diethyl]phosphato-titanate (CAS 103850-22-2); also known as titanium IV, 2,2-[bis 2-propenolatomethyl, butanolato, tris (diethyl) phosphato] (CAS 110438-25-0); or LICA 12 (CAS 103850-22-2);
 - b. Titanium IV, [(2-propenolato-1) methyl, n-propanolatomethyl] butanolato-1, tris[diethyl] pyrophosphate or KR3538;
 - c. Titanium IV, [(2-propenolato-1) methyl, n-propanolatomethyl] butanolato-1, tris(diethyl)phosphate;
16. Polycyanodifluoroaminoethyleneoxide;
17. Bonding agents as follows:
 - a. 1,1R,1S-trimeoyl-tris(2-ethylaziridine) (HX-868, BITA) (CAS 7722-73-8);
 - b. Polyfunctional aziridine amides with isophthalic, trimesic, isocyanuric or trimethyladipic backbone also having a 2-methyl or 2-ethyl aziridine group;

Note: ML8.f.17.b. includes:

 - a. 1,1H-Isophthaloyl-bis(2-methylaziridine) (HX-752) (CAS 7652-64-4);
 - b. 2,4,6-tris(2-ethyl-1-aziridinyl)-1,3,5-triazine (HX-874) (CAS 18924-91-9);
 - c. 1,1'-trimethyladipoyl-bis(2-ethylaziridine) (HX-877) (CAS 71463-62-2).
18. Propyleneimine (2-methylaziridine) (CAS 75-55-8);
19. Superfine iron oxide (Fe₂O₃)(CAS 1317-60-8) with a specific surface area more than 250 m²/g and an average particle size of 3.0 nm or less;
20. TEPAN (tetraethylenepentaamineacrylonitrile) (CAS 68412-45-3); cyanoethylated polyamines and their salts;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

21. TEPANOL (tetraethylenepentaamineacrylonitrileglycidol) (CAS 68412-46-4); cyanoethylated polyamines adducted with glycidol and their salts;
 22. TPB (triphenyl bismuth) (CAS 603-33-8);
 23. TEPB (Tris (ethoxyphenyl) bismuth) (CAS 90591-48-3);
- g. Precursors as follows:
1. BCMO (3,3-bis(chloromethyl)oxetane) (CAS 78-71-7);
 2. Dinitroazetidene-t-butyl salt (CAS 125735-38-8);
 3. Hexaazaisowurtzitane derivatives including HBIW (hexabenzylhexaazaisowurtzitane) (CAS 124782-15-6) (see also ML8.a.4.) and TAIW (tetraacetyldibenzylhexaazaisowurtzitane) (CAS 182763-60-6) (see also ML8.a.4.);
 4. This entry is not used;
 5. TAT (1,3,5,7-tetraacetyl-1,3,5,7-tetraaza cyclo-octane) (CAS 41378-98-7);
 6. 1,4,5,8-tetraazadecalin (CAS 5409-42-7);
 7. 1,3,5-trichlorobenzene (CAS 108-70-3);
 8. 1,2,4-trihydroxybutane (1,2,4-butanetriol) (CAS 3068-00-6);
 9. DADN (1,5-diacetyl-3,7-dinitro-1,3,5,7-tetraaza-cyclooctane) (see also ML8.a.13.)^[F77,]
- ^[F78]h. 'Reactive material' powders and shapes, as follows:
1. Powders of any of the following materials, with a particle size less than 250 µm in any direction and not specified elsewhere in ML8:
 - a. Aluminium;
 - b. Niobium;
 - c. Boron;
 - d. Zirconium;
 - e. Magnesium;
 - f. Titanium;
 - g. Tantalum;
 - h. Tungsten;
 - i. Molybdenum; or
 - j. Hafnium;
 2. Shapes, not specified in ML3, ML4, ML12 or ML16, fabricated from powders specified in ML8.h.1.

Technical Notes:

^[F79]For the purposes of ML8.h.:]

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

1. *'Reactive materials' are designed to produce an exothermic reaction only at high shear rates and for use as liners or casings in warheads.*
2. *'Reactive material' powders are produced by, for example, a high energy ball milling process.*
3. *'Reactive material' shapes are produced by, for example, selective laser sintering.]*

Textual Amendments

- F56** Word in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(c)(i)**
- F57** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(c)(ii)**
- F58** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(d)**
- F59** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(e)**
- F60** Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(8)**
- F61** Words in Sch. 2 inserted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(4)**
- F62** Words in Sch. 2 inserted (5.3.2018) by [The Export Control \(Amendment\) Order 2018 \(S.I. 2018/165\)](#), arts. 1, **3(5)**
- F63** Words in Sch. 2 inserted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(ii)**
- F64** Words in Sch. 2 inserted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(9)**
- F65** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(f)**
- F66** Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(5)**
- F67** Words in Sch. 2 substituted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(iii)**
- F68** Word in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(13)**
- F69** Words in Sch. 2 substituted (5.3.2018) by [The Export Control \(Amendment\) Order 2018 \(S.I. 2018/165\)](#), arts. 1, **3(6)**
- F70** Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(6)**
- F71** Words in Sch. 2 omitted (30.6.2019) by virtue of [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(iv)**
- F72** Words in Sch. 2 inserted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(10)**
- F73** Words in Sch. 2 inserted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(g)**
- F74** Sch. 2 bracket inserted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(v)**
- F75** Words in Sch. 2 inserted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(vi)**
- F76** Words in Sch. 2 substituted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(vii)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- F77** Punctuation in Sch. 2 replaced (5.3.2018) by The Export Control (Amendment) Order 2018 (S.I. 2018/165), arts. 1, **3(7)**
- F78** Words in Sch. 2 inserted (5.3.2018) by The Export Control (Amendment) Order 2018 (S.I. 2018/165), arts. 1, **3(8)**
- F79** Words in Sch. 2 inserted (1.4.2024) by The Export Control (Amendment) Regulations 2024 (S.I. 2024/346), regs. 1(1), **2(2)(h)**

ML9 “Vessels” of war, special naval equipment, accessories, components and other surface “vessels”, as follows:

N.B.: *Electronic guidance and navigation equipment is controlled in ML11.a.*

a. “Vessels” and components as follows:

1. “Vessels” (surface or underwater) specially designed or modified for military use, regardless of current state of repair or operating condition, and whether or not they contain weapon delivery systems or armour, and components therefor specially designed or modified for military use;

[^{F80}Note: ML9.a.1. includes vehicles specially designed or modified for delivery of divers.]

2. Surface “vessels” [^{F81}not] specified in ML9.a.1., having any of the following, fixed or integrated into the “vessel”:

- a. Automatic weapons having a calibre of 12.7 mm or greater specified in ML1, or weapons specified in ML2, ML4, ML12 or ML19, or ‘mountings’ or hard points for weapons having a calibre of 12.7mm or greater;

Technical Note: *[^{F82}For the purposes of ML9.a.2.a., ‘mountings’ refers to weapon mounts or structural strengthening for the [^{F83}purposes of] installing weapons.*

- b. Fire control systems specified in ML5;

c. Both:

1. ‘CBRN protection’; and
2. ‘Pre-wet or wash down system’ designed for decontamination purposes; or

Technical Notes: *[^{F84}For the purposes of ML9.a.2.c.2., ‘pre-wet or wash down system’ is a seawater spray system capable of simultaneously wetting the exterior superstructure and decks of a vessel.]*

- d. Active weapon countermeasure systems specified in ML4.b., ML5.c. or ML11.a. but only where the “vessel” has any of the following:

1. ‘CBRN protection’;
2. Hull and superstructure, specially designed to reduce the radar cross section;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- 3 Thermal signature reduction devices, (e.g. an exhaust gas cooling system), excluding those specially designed to increase overall power plant efficiency or to reduce the environmental impact; or
- 4 A degaussing system designed to reduce the magnetic signature of the whole vessel.

^{F85}Technical
Note:

For the purposes of ML9.a.2., 'CBRN protection' is a self-contained interior space containing features such as over-pressurisation, isolation of ventilation systems, limited ventilation openings with CBRN filters and limited personnel access points incorporating air-locks.]

- b. Anti-submarine nets and anti-torpedo nets, specially designed for military use;
- c. Hull penetrators and connectors specially designed for military use, that enable interaction with equipment external to a “vessel”, and components therefor specially designed for military use.

Textual Amendments

- F80** Words in Sch. 2 inserted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(11)**
- F81** Word in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(12)**
- F82** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(i)(i)**
- F83** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(i)(ii)**
- F84** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(j)**
- F85** Words in Sch. 2 inserted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(k)**

ML10 “Aircraft”, “lighter-than-air vehicles”, “Unmanned Aerial Vehicles” (“UAVs”), aero-engines and “aircraft” equipment, related goods and components, as follows, specially designed or modified for military use:

N.B.: Electronic guidance and navigation equipment is controlled in ML11.a.

- a. Manned “aircraft” and “lighter-than-air vehicles”, and specially designed components therefor;

^{F86}Note: ML10.a. does not control “aircraft” or “lighter-than-air vehicles” meeting all of the following descriptions:

- a. were first manufactured before 1946;
- b. do not incorporate items specified in this Schedule unless the items are required to meet safety or airworthiness standards; and
- c. do not incorporate weapons specified in this Schedule, unless they have been rendered inoperable and incapable of being returned to operation, including:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

1. in the case of firearms to which the “Deactivation Regulation” applies, by having been deactivated and marked in accordance with the technical specifications set out in Annexes I and II to that Regulation;

2. in the case of firearms to which the “Deactivation Regulation” does not apply, by bearing a mark and being certified as having been rendered incapable of discharging any shot, bullet or other missile in accordance with section 8 of the Firearms (Amendment) Act 1988.]

- b. This entry is not used.
- c. [^{F87}Unmanned “aircraft” and related equipment, as follows, and specially designed components therefor:
1. “UAVs” Remotely Piloted Air Vehicles (RPVs), autonomous programmable vehicles and unmanned “lighter-than-air vehicles”;
 2. Launchers, recovery equipment and ground support equipment;
 3. Equipment designed for command and control;]
- d. Propulsion aero-engines and specially designed components therefor;
- [^{F88}Note: ML10.d. does not apply to propulsion aero-engines that were first manufactured before 1946.]
- e. Airborne refuelling equipment specially designed or modified for any of the following, and specially designed components therefor:
1. “Aircraft” [^{F89}specified in] ML10.a.; or
 2. [^{F90}Unmanned “aircraft” [^{F89}specified in] ML10.c;]
- [^{F91}f. ‘Ground equipment’ specially designed for “aircraft” specified in ML10.a. or aero-engines specified in ML10.d.;
- Note 1: ML10.f. includes pressure refuelling equipment and equipment designed to facilitate operations in confined areas, including equipment located on board a ship.*
- Note 2: ML10.f. does not control:*
1. Towbars;
 2. Protective mats and covers;
 3. Ladders, steps and platforms;
 4. Chocks, lashings and tie-down equipment.]
- g. Aircrew life support equipment, aircrew safety equipment and other devices for emergency escape, not specified in ML10.a., designed for “aircraft” [^{F89}specified in] ML10.a.;
- Note: ML10.g. does not control aircrew helmets that do not incorporate, or have mountings or fittings for, equipment specified in this Schedule.*
- N.B.: For helmets see also ML13.c.*
- h. Parachutes, paragliders and related equipment, as follows, and specially designed components therefor:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

1. [^{F92}Parachutes, other than those which form part of items controlled elsewhere in this Schedule;]
 2. Paragliders;
 3. Equipment specially designed for high altitude parachutists;
- i. Controlled opening equipment or automatic piloting systems designed for parachuted loads.

F93

...

Textual Amendments

- F86** Words in Sch. 2 inserted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(13)**
- F87** Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(7)**
- F88** Words in Sch. 2 inserted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(14)**
- F89** Words in Sch. 2 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(3)(e)**
- F90** Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(8)**
- F91** Words in Sch. 2 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(4)**
- F92** Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(10)**
- F93** Words in Sch. 2 omitted (3.11.2022) by virtue of [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(16)**

ML11 Electronic equipment, “spacecraft” and components, not specified elsewhere in this Schedule, as follows:

- a. Electronic equipment specially designed or modified for military use and specially designed components therefor;

[^{F94}Note:ML11.a. controls all electronic guidance and navigation equipment.]

- ^{F95}b. Jamming equipment designed or modified to hinder the reception, operation or effectiveness of positioning, navigation or timing services provided by “satellite navigation systems”, and specially designed components therefor;]

- c. “Spacecraft” specially designed or modified for military use, and “spacecraft” components specially designed for military use.

Textual Amendments

- F94** Words in Sch. 2 inserted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(5)**
- F95** Words in Sch. 2 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(6)(7)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

-
- ML12** High velocity kinetic energy weapon systems and related equipment, as follows, and specially designed components therefor:
- a. Kinetic energy weapon systems specially designed for destruction or effecting mission abort of a target;

N.B.: For weapon systems using sub-calibre ammunition or employing solely chemical propulsion, and ammunition therefor, see ML1 to ML4.
 - b. Specially designed test and evaluation facilities and test models (e.g. diagnostic instrumentation and targets), for dynamic testing of kinetic energy projectiles and systems.
-
- ML13** Armoured or protective [^{F96}goods, constructions, components and accessories], as follows:
- a. Metallic or non-metallic armoured plate, having any of the following characteristics:
 1. Manufactured to comply with a military standard or specification; or
 2. Suitable for military use;

[^{F97}N.B.: For body armour plates, see ML13.d.2..]
 - b. Constructions of metallic or non-metallic materials, or combinations thereof, specially designed to provide ballistic protection for military systems and specially designed components therefor;
 - ^{F98}c. Helmets and specially designed components and accessories therefor, as follows:
 1. Helmets manufactured according to military standards or specifications, or comparable national standards;
 2. Shells, liners, or comfort pads, specially designed for helmets specified in ML13.c.1.;
 3. Add-on ballistic protection elements, specially designed for helmets specified in ML13.c.1..

Note 1: ML13.c. does not control helmets that meet all of the following:

 - a. Were first manufactured before 1970;
 - b. Are neither designed or modified to accept, nor equipped with items specified in this Schedule.

Note 2: ML13.c. does not control individual helmets when accompanying their users.

N.B.: Military high altitude parachutists' protective headgear is controlled in ML10.h.3..]
 - d. Body armour or protective garments, and components therefor, as follows:
 1. Soft body armour or protective garments, manufactured to military standards or specifications, or to their equivalents, and specially designed components therefor;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

[^{F99}Note 1: For the purposes of ML13.d.1., military standards or specifications include, at a minimum, specifications for fragmentation protection.

Note 2: ML13.d.1. does not control protective eyewear.

N.B.: For “laser” protective eyewear, see ML17.o.]

2. Hard body armour plates providing ballistic protection equal to or [^{F100}better] than level III (NIJ 0101.06 July 2008) or [^{F101}equivalent standards].

Note: ML13.d. does not control individual suits of body armour or ballistic protective garments for personal protection and accessories therefor when accompanying their users.

N.B.: See also 1A of Annex I to “the dual-use Regulation”.

Textual Amendments

F96 Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(17)**

F97 Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(18)**

F98 Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(19)**

F99 Words in Sch. 2 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(8)**

F100 Word in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(16)(i)**

F101 Words in Sch. 2 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(16)(ii)**

ML14 Specialised equipment for military training or for simulating military scenarios, simulators specially designed for training in the use of any firearm or weapon specified in ML1 or ML2, and specially designed components and accessories therefor.

ML15 Imaging or countermeasure equipment, as follows, specially designed for military use, and specially designed components and accessories therefor:

- a. Recorders and image processing equipment;
- b. Cameras, photographic equipment and film processing equipment;
- c. Image intensifier equipment;
- d. Infrared or thermal imaging equipment;
- e. Imaging radar sensor equipment;
- f. Countermeasure or counter-countermeasure equipment for the equipment specified in ML15.a. to ML15.e.

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

[^{F102}Note: ML15.f. includes equipment designed to degrade the operation or effectiveness of military imaging systems or to minimise such degrading effects.]

Note: ML15 does not control “first generation image intensifier tubes” or equipment specially designed so that only “first generation image intensifier tubes” are or can be incorporated in it.

N.B. 1: For weapons sights incorporating “first generation image intensifier tubes” see ML1., ML2. and ML5.

N.B. 2: See also 6A of Annex I to “the dual-use Regulation”.

Textual Amendments

F102 Words in Sch. 2 inserted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, 2(17)

ML16 Forgings, castings and other unfinished goods, specially designed for any of the goods specified in ML1 to ML4, ML6, ML9, ML10, ML12 or ML19.

ML17 Miscellaneous goods, material and “libraries”, as follows, and specially designed components therefor:

a. Diving and underwater swimming apparatus, specially designed or modified for military use, as follows:

1. Self-contained diving rebreathers, closed or semi-closed circuit;
2. Underwater swimming apparatus specially designed for use with the diving apparatus specified in ML17.a.1.;

N.B.: See also 8A002.q. of Annex I to “the dual-use Regulation”.

b. Construction equipment specially designed for military use;

c. Fittings, coatings and treatments for signature suppression, specially designed for military use;

d. Field engineer equipment specially designed for use in a combat zone;

e. “Robots”, “robot” controllers and “robot” “end-effectors”, meeting any of the following descriptions:

1. Specially designed for military use;
2. Incorporating means of protecting hydraulic lines against externally induced punctures caused by ballistic fragments (e.g. incorporating self-sealing lines) and designed to use hydraulic fluids with flash points higher than 839 K (566°C); or
3. Specially designed or rated for operating in an [^{F103}‘electromagnetic pulse’ (‘EMP’)] environment;

Technical Note: [^{F104}For the purposes of ML17.e.3., ‘EMP’ does not refer to unintentional interference caused by electromagnetic radiation

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

from nearby equipment (e.g. machinery, appliances or electronics) or lightning.

- f. “Libraries” specially designed or modified for military use with systems, equipment or components, specified in this Schedule;
- [^{F105}g. Nuclear power generating equipment or propulsion equipment, not specified elsewhere in this Schedule, specially designed for military use and components therefor, specially designed or modified for military use;
Note: ML17.g. includes “nuclear reactors”]
- h. Goods and material, coated, treated or prepared to provide signature suppression, specially designed for military use, [^{F106}not] controlled elsewhere in this Schedule;
- i. Simulators specially designed for military “nuclear reactors”;
- j. Mobile repair shops specially designed or modified to service military equipment;
- k. Field generators specially designed or modified for military use;
- l. [^{F107}ISO intermodal containers or demountable vehicle bodies (i.e., swap bodies), specially designed or modified for military use;]
- m. Ferries, [^{F108}not] controlled elsewhere in this Schedule,
^{F109}
... bridges and pontoons, specially designed for military use;
- n. Test models specially designed for the “development” of goods specified in ML4, ML6, ML9 or ML10;
- o. [^{F110}“Laser” protection equipment (e.g. eye [^{F111}or] sensor protection) specially designed for military use;]
- p. [^{F112}“Fuel cells”, other than those which form components of items controlled elsewhere in this Schedule, specially designed or modified for military use.]

Textual Amendments

- F103** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(l)**
- F104** Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(m)**
- F105** Words in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(20)**
- F106** Word in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(21)**
- F107** Words in Sch. 2 substituted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(x)**
- F108** Word in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(22)**
- F109** Word in Sch. 2 omitted (7.6.2021) by virtue of [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(18)**
- F110** Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(11)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

F111 Word in Sch. 2 substituted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(5)(b)(xi)**

F112 Words in Sch. 2 substituted (13.7.2017) by [The Export Control \(Amendment\) \(No. 3\) Order 2017 \(S.I. 2017/697\)](#), arts. 1, **2(12)**

ML18 “Production” equipment [^{F113}, environmental test facilities,] and components, as follows:

a. [^{F114}Equipment specially] designed or modified
F115

... for the “production” of goods specified in this Schedule, and specially designed components therefor;

[^{F116}b. Environmental test facilities, specially designed for the certification, qualification or testing of goods specified in this Schedule, and specially designed equipment therefor, not specified elsewhere in this Schedule]

Textual Amendments

F113 Words in Sch. 2 inserted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(19)**

F114 Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(n)(i)**

F115 Words in Sch. 2 omitted (1.4.2024) by virtue of [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(n)(ii)**

F116 Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(o)**

ML19 Directed energy weapon (DEW) systems, related or countermeasure equipment and test models, as follows, and specially designed components therefor:

a. “Laser” systems specially designed for destruction or effecting mission-abort of a target;

b. Particle beam systems capable of destruction or effecting mission-abort of a target;

c. High power radio-frequency (RF) systems capable of destruction or effecting mission-abort of a target;

d. Equipment specially designed for the detection or identification of, or defence against, systems specified in ML19.a. to ML19.c.;

e. Physical test models for the systems, equipment and components specified in ML19;

f. “Laser” systems specially designed to cause permanent blindness to un-enhanced vision (i.e. to the naked eye or to the eye with corrective eyesight devices).

ML20 Cryogenic and “superconductive” equipment, as follows, and specially designed components and accessories therefor:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- a. Equipment specially designed or configured to be installed in a vehicle for military ground, marine, airborne or space applications, capable of operating while in motion and of producing or maintaining temperatures below 103 K (-170°C);
- b. “Superconductive” electrical equipment [^{F117}(rotating machinery or transformers)] specially designed or configured to be installed in a vehicle for military ground, marine, airborne or space applications and capable of operating while in motion.

Note: ML20 does not control direct-current hybrid homopolar generators that have single-pole normal metal armatures which rotate in a magnetic field produced by superconducting windings, provided those windings are the only superconducting component in the generator.

Textual Amendments

F117 Words in Sch. 2 substituted (30.6.2019) by [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, 2(5)(b)(xii)

ML21 “Software” as follows:

- a. “Software” specially designed or modified for any of the following:
 1. “Development”, “production” operation or maintenance of equipment specified in this Schedule;
 2. “Development” or “production” of materials specified in this Schedule; or
 3. “Development”, “production”, operation or maintenance of “software” specified in this Schedule.
- b. Specific “software”, other than that specified in ML21.a., as follows:
 1. “Software” that is both specially designed for military use and specially designed for modelling, simulating or evaluating military weapons systems;
 2. “Software” that is both specially designed for military use and specially designed for modelling or simulating military operational scenarios;
 3. “Software” for determining the effects of conventional, nuclear, chemical or biological weapons;
 4. “Software” that is both specially designed for military use and specially designed for Command, Communications, Control and Intelligence (C³I) applications or Command, Communications, Control, Computer and Intelligence (C⁴I) applications;
 - ^{F118}5. “Software” specially designed or modified for the conduct of military offensive cyber operations;

Note 1: ML21.b.5. includes “software” designed to destroy, damage, degrade or disrupt systems, equipment or “software”.

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

specified in this Schedule, and associated cyber reconnaissance and cyber command and control “software”.

Note 2: ML21.b.5. does not apply to a “vulnerability disclosure” or to a “cyber incident response”, limited to non-military defensive cybersecurity readiness or response.]

- c. “Software”, not specified in ML21.a. or ML21.b., specially designed or modified to enable equipment not specified in this Schedule to perform the military functions of equipment specified in this Schedule;

[^{F119}[^{F120}N.B.:] See systems, equipment or components specified in this Schedule for general purpose “digital computers” with installed “software” [^{F121}specified in ML21.c..]]

- d. Other “software” specially designed or modified for military use.

N.B.: Source code for “software” is controlled in ML22.

Textual Amendments

F118 Words in Sch. 2 inserted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(20)**

F119 Words in Sch. 2 inserted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(21)**

F120 Word in Sch. 2 substituted (3.11.2022) by [The Export Control \(Amendment\) \(No. 2\) Order 2022 \(S.I. 2022/1042\)](#), arts. 1, **3(24)**

F121 Words in Sch. 2 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, **3(9)**

PL5001 Other security and para-military police goods as follows:

- a. Acoustic devices represented by the manufacturers or suppliers thereof as suitable for riot control purposes, and specially designed components therefor;

- b. Anti-riot and ballistic shields and specially designed components therefor;

N.B.: See also 2.1 of Annex III to “the torture Regulation”.

- c. Shackles designed for restraining human beings having an overall dimension including chain, when measured from the outer edge of one cuff to the outer edge of the other cuff, of between 240mm and 280mm when locked;

N.B.: See also 1.1 of Annex III to “the torture Regulation”.

- d. Water cannon and specially designed components therefor;

N.B.: See also 3.6 of Annex III to “the torture Regulation”.

- e. Riot control vehicles which have been specially designed or modified to be electrified to repel boarders and components therefor specially designed or modified for that purpose;

- f. Components specially designed or modified for portable devices designed or modified for the purposes of riot control or self-protection by the administration of an electric shock (e.g. electric-shock batons, electric-shock shields, stun-guns and electric-shock dart-guns).

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

N.B.: See also [^{F122}article 42S] of this Order.

Textual Amendments

F122 Words in Sch. 2 substituted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(2)(p)**

ML22 “Technology” as follows:

- a. “Technology”, other than “technology” specified in ML22.b., which is “required” for the “development”, “production”, operation, installation, maintenance (checking), repair, overhaul or refurbishing of goods or “software” specified in this Schedule;
- b. “Technology” as follows:
 1. “Technology” “required” for the design of, the assembly of components into, and the operation, maintenance and repair of complete production installations for goods specified in this Schedule, even if the components of such production installations are not specified;
 2. This entry is not used;
 3. This entry is not used;
 4. “Technology” “required” exclusively for the incorporation of “biocatalysts”, specified in ML7.i.1, into military carrier substances or military material.

N.B.: See article 18 and article 26 of this Order for exceptions from the controls on “technology”.]

[^{F123}SCHEDULE 3

Articles 2 and 4

UK CONTROLLED DUAL-USE GOODS, SOFTWARE AND TECHNOLOGY

Textual Amendments

F123 Sch. 3 substituted (31.8.2010) by [The Export Control \(Amendment\) \(No. 2\) Order 2010 \(S.I. 2010/2007\)](#), arts. 1(1), 2, **Sch.**

Note: In this Schedule, defined terms are printed in quotation marks.

Definitions

In this Schedule:

[^{F124}“ammunition” means the complete round or the components thereof, including cartridge cases, primers, propellant powder, bullets or projectiles that are used in a “firearm”];]

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

[^{F125}“circuit element” is a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc;]

“development” means all stages prior to “production” (eg, design, design research, design analyses, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into goods or “software”, configuration design, integration design, layouts);

[^{F126}“Deactivation Regulation” means Commission Implementing Regulation (EU) 2015/2403 establishing common guidelines on deactivation standards and techniques for ensuring that deactivated firearms are rendered irreversibly inoperable.]

[^{F125}“digital computer” means equipment which can, in the form of one or more discrete variables, perform all of the following—

- a. *Accept data;*
- b. *Store data or instructions in fixed or alterable (writable) storage;*
- c. *Process data by means of a stored sequence of instructions which is modifiable; and*
- d. *Provide output of data;*

Note: Modifications of a stored sequence of instructions include replacement of fixed storage devices, but not a physical change in wiring or interconnections;”]

[^{F125}“discrete component” is a separately packaged “circuit element” with its own external connections;]

[^{F125}“electronic assemblies” means a number of electronic components (i.e., “circuit elements”, “discrete components”, integrated circuits, etc.) connected together to perform (a) specific function(s), replaceable as an entity and normally capable of being disassembled;]

“energetic materials” means substances or mixtures that react chemically to release energy required for their intended application; “explosives”, “pyrotechnics” and “propellants” are sub-classes of energetic materials;

[^{F127}“essential components” means the breech-closing mechanism, the chamber and the barrel of a “firearm”, which, being separate objects, are included in the category of the “firearms” on which they are or are intended to be mounted;]

“explosive signatures” are features which are characteristic of explosives in any form prior to their initiation, as detected using technology including, but not limited to, ion mobility spectrometry, chemiluminescence, fluorescence, nuclear, acoustic or electromagnetic techniques;

“explosives” means solid, liquid or gaseous substances or mixtures of substances which, in their application as primary, booster, or main charges in warheads, demolition and other applications, are required to detonate;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

[^{F128}“firearm” means any portable barrelled weapon that expels, is designed to expel or may be converted to expel, a [^{F129}shot], bullet or projectile by the action of a combustible propellant;]

[^{F130}Note: This definition does not include items specially designed for any of the following:

- a. Alarm;
- b. Signalling;
- c. Life-saving;
- d. Animal slaughter;
- e. Harpoon fishing;
- f. Industrial or technical purposes.]

[^{F131}“Firearm Regulation”, in relation to—

- (a) England and Wales and Scotland, means Regulation (EU) No 258/2012 of the European Parliament and of the Council of 14 March 2012 implementing Article 10 of the United Nations' Protocol against the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition, supplementing the United Nations Convention against Transnational Organised Crime (UN Firearms Protocol), and establishing export authorisation, and import and transit measures for firearms, their parts and components and ammunition;
- (b) Northern Ireland, means Regulation (EU) No 258/2012 of the European Parliament and of the Council of 14 March 2012 implementing Article 10 of the United Nations' Protocol against the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition, supplementing the United Nations Convention against Transnational Organised Crime (UN Firearms Protocol), and establishing export authorisation, and import and transit measures for firearms, their parts and components and ammunition as it has effect by virtue of the Protocol on Ireland/ Northern Ireland in the EU withdrawal agreement;]

“improvised explosive devices” means devices fabricated or intended to be placed in an improvised manner incorporating destructive, lethal, noxious, “pyrotechnic” or incendiary chemicals designed to destroy, disfigure or harass; they may incorporate military stores, but are normally devised from non-military components;

“lighter-than-air vehicles” means balloons and airships that rely on hot air or on lighter-than-air gases such as helium or hydrogen for their lift;

[^{F132}“parts” means any element or replacement element as referred to specifically designed for a “firearm” and essential to its operation, including a barrel, frame or [^{F133}receiver], slide or cylinder, bolt or breech block ^{F134} ...]

“previously separated” in relation to a controlled isotope in any form, means after the application of any process intended to increase the concentration of the controlled isotope;

[^{F125}Process Design Kit” (“PDK”) is a software tool provided by a semiconductor manufacturer to ensure that the required design practices and rules are taken into account in order to successfully produce a specific integrated circuit design in a specific semiconductor process, in accordance with technological and manufacturing constraints (each semiconductor manufacturing process has its particular “PDK”);]

“production” means all production stages (eg, product engineering, manufacture, integration, assembly (mounting), inspection, testing, quality assurance);

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

“propellants” means substances or mixtures that react chemically to produce large volumes of hot gases at controlled rates to perform mechanical work;

“pyrotechnic(s)” means mixtures of solid or liquid fuels and oxidisers which, when ignited, undergo an energetic chemical reaction at a controlled rate intended to produce specific time delays, or quantities of heat, noise, smoke, visible light or infrared radiation; pyrophorics are a subclass of pyrotechnics, which contain no oxidisers but ignite spontaneously on contact with air;

“required” as applied to “technology”, refers to only that portion of “technology” which is peculiarly responsible for achieving or exceeding the controlled performance levels, characteristics or functions. Such “required” “technology” may be shared by different goods ^{F135} ...;

“technology” means specific ‘information’ necessary for the “development”, “production” or “use” of goods or “software”;

Technical Note:

‘Information’ may take forms including, not limited to: blueprints, plans, diagrams, models, formulae, tables, ‘source code’, engineering designs and specifications, manuals and instructions written or recorded on other media or devices (eg, disk, tape, read-only memories);

‘source code’ (or source language) is a convenient expression of one or more processes which may be turned by a programming system into equipment executable form.

[^{F136}“Unmanned Aerial Vehicle” (or “UAV”) means any “aircraft” capable of initiating flight and sustaining controlled flight and navigation without any human presence on board;]

“use” means operation, installation (eg, on-site installation), maintenance, checking, repair, overhaul and refurbishing;

“vaccines” are medical products in a pharmaceutical formulation licensed by, or having marketing or clinical trial authorisation from, the regulatory authorities of either the country of manufacture or of use, which 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.

Textual Amendments

- F124** Words in Sch. 3 inserted (17.4.2015) by [The Export Control \(Amendment\) \(No. 2\) Order 2015 \(S.I. 2015/940\)](#), arts. 1, **2(7)(a)**
- F125** Words in Sch. 3 inserted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), **2(3)(a)**
- F126** Words in Sch. 3 inserted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(4)(a)**
- F127** Words in Sch. 3 inserted (17.4.2015) by [The Export Control \(Amendment\) \(No. 2\) Order 2015 \(S.I. 2015/940\)](#), arts. 1, **2(7)(b)**
- F128** Words in Sch. 3 inserted (17.4.2015) by [The Export Control \(Amendment\) \(No. 2\) Order 2015 \(S.I. 2015/940\)](#), arts. 1, **2(7)(c)**
- F129** Word in Sch. 3 substituted (22.2.2017) by [The Export Control \(Amendment\) Order 2017 \(S.I. 2017/85\)](#), arts. 1, **2(9)(a)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- F130** Words in Sch. 3 inserted (14.9.2018) by The Export Control (Amendment) (No. 2) Order 2018 (S.I. 2018/939), arts. 1, **2(4)(b)**
- F131** Words in Sch. 3 substituted (31.12.2020) by S.I. 2019/137, regs. 1, **4(32)(a)** (as substituted by The Export Control (Amendment) (EU Exit) Regulations 2020 (S.I. 2020/1502), regs. 2(3), **7(11)**); 2020 c. 1, Sch. 5 para. 1(1)
- F132** Words in Sch. 3 inserted (17.4.2015) by The Export Control (Amendment) (No. 2) Order 2015 (S.I. 2015/940), arts. 1, **2(7)(d)**
- F133** Word in Sch. 3 substituted (22.2.2017) by The Export Control (Amendment) Order 2017 (S.I. 2017/85), arts. 1, **2(9)(b)(ii)**
- F134** Words in Sch. 3 omitted (22.2.2017) by virtue of The Export Control (Amendment) Order 2017 (S.I. 2017/85), arts. 1, **2(9)(b)(i)**
- F135** Words in Sch. 3 omitted (7.6.2021) by virtue of The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(23)(a)**
- F136** Words in Sch. 3 inserted (7.6.2021) by The Export Control (Amendment) Order 2021 (S.I. 2021/586), arts. 1, **2(23)(b)**

Explosive-related goods and technology

- PL8001** The export or “transfer by electronic means” of the following goods or “technology” is prohibited to any destination outside all of the following: [^{F137}European Union], Australia, New Zealand, Canada, Norway, Switzerland, United States of America and Japan:
- a. Equipment and devices, other than those in Schedule 2 or in 1A004.d., 1A005, 1A006, 1A007, 1A008, 3A229, 3A232 or 5A001.h. in Annex I to “the dual-use Regulation”, for detection of or use with “explosives” or for dealing with or protecting against “improvised explosive devices”, as follows, and specially designed components therefor:
1. Electronic equipment designed to detect “explosives” or “explosive signatures”;
N.B.: See also 1A004.d. in Annex I to “the dual-use Regulation”.
Note: PL8001.a.1. does not control equipment requiring operator judgment to establish the presence of “explosives” or “explosive signatures”.
 2. Electronic jamming equipment specially designed to prevent the detonation by radio remote control of “improvised explosive devices”;
N.B.: See also 5A001.h. in Annex I to “the dual-use Regulation”.
 3. Equipment and devices specially designed to initiate explosions by electrical or non-electrical means, (eg, firing sets, detonators and igniters);
N.B.: See also 1A007, 1A008, 3A229 and 3A232 in Annex I to “the dual-use Regulation”.
Note: PL8001.a.3. does not control:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- a. *Equipment and devices specially designed for a specific commercial use consisting of the actuation or operation by explosive means of other equipment or devices the function of which is not the initiation or creation of explosions;*
- b. *Pressure controlled equipment specially designed for down-hole oilfield equipment applications and which are incapable of use at atmospheric pressure;*
F138
...
- [^{F139}c. *Detonating cord; and*
- d. *Equipment and devices specially designed for use with pyrotechnics.]*
4. Equipment and devices, including, but not limited to: shields and helmets, specially designed for the disposal of “improvised explosive devices”;
- N.B.: *See also 1A005, 1A006 and 5A001.h. in Annex I to “the dual-use Regulation”.*
- Note: *PL8001.a.4. does not control bomb blankets, mechanical handling equipment for manoeuvring or exposing “improvised explosive devices”, containers designed for holding “improvised explosive devices” or objects suspected of being such devices or other equipment specially designed to temporarily protect against “improvised explosive devices” or objects suspected of being such devices.*
- b. Linear cutting explosive charges other than those listed at entry 1A008 of Annex I to “the dual-use Regulation”;
- c. “Technology” “required” for the “use” of goods in PL8001.a. and PL8001.b.”
- N.B. *See article 18 of this Order for exceptions from the controls on “technology”.*

Textual Amendments

- F137** Words in Sch. 3 substituted (31.12.2020) by S.I. 2019/137, regs. 1, **4(32)(b)** (as substituted by The Export Control (Amendment) (EU Exit) Regulations 2020 (S.I. 2020/1502), regs. 2(3), **7(11)**); 2020 c. 1, Sch. 5 para. 1(1)
- F138** Word in Sch. 3 omitted (17.5.2014) by virtue of The Export Control (Amendment) (No. 2) Order 2014 (S.I. 2014/1069), arts. 1, **2(3)(a)**
- F139** Word in Sch. 3 substituted (17.5.2014) by The Export Control (Amendment) (No. 2) Order 2014 (S.I. 2014/1069), arts. 1, **2(3)(b)**

Materials, chemicals, micro-organisms and toxins

PL9002

The export of the following goods is prohibited to any destination:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

“Energetic materials”, as follows, and mixtures containing one or more thereof:

- a. Nitrocellulose (containing more than 12.5% nitrogen);
- b. Nitroglycerol;
- c. Pentaerythritol tetranitrate (PETN);
- d. Picryl chloride;
- e. Trinitrophenylmethylnitramine (tetryl);
- f. 2,4,6-Trinitrotoluene (TNT).

Note: *PL9002 does not control single, double and triple base “propellants”.*

PL9003 The export of the following goods is prohibited to any destination:

“Vaccines” for protection against:

- a. bacillus anthracis;
- b. botulinum toxin.

PL9004 The export of the following goods is prohibited to any destination:

“Previously separated” americium-241, -242m or -243 in any form.

Note: *PL9004 does not control goods with an americium content of 10 grams or less.*

Telecommunications and related technology

PL9005 The export or “transfer by electronic means” of the following goods, or “technology” is prohibited to any destination in Iran:

- a. Tropospheric scatter communication equipment using analogue or digital modulation techniques and specially designed components therefor;
- b. “Technology” for the “development”, “production” or “use” of goods specified in PL9005.a.

N.B. *See article 18 of this Order for exceptions from the controls on “technology”.*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

Detection equipment

PL9006 The export of ‘electro-statically powered’ equipment for detecting “explosives”, other than detection equipment specified in Schedule 2, PL8001.a.1. or in 1A004.d. in Annex I to “the dual-use Regulation”, is prohibited to any destination in Afghanistan or Iraq.

Technical note

‘Electro-statically powered’ means using electro-statically generated charge.

Vessels and related software and technology

PL9008 The export or “transfer by electronic means” of the following goods, “software” or “technology” is prohibited to any destination in Iran:

- a. “Vessels”, inflatable craft and ‘submersible vehicles’, and related equipment and components, as follows, other than those specified in Schedule 2 to this Order or Annex I to “the dual-use Regulation”:
 1. Marine “vessels” (surface or underwater), inflatable craft and ‘submersible vehicles’;
 2. Equipment and components, designed for “vessels”, inflatable craft and ‘submersible vehicles’, as follows:
 - a. Hull and keel structures and components;
 - b. Propulsive engines designed or modified for marine use and specially designed components therefor;
 - c. Marine radar, sonar and speed log equipment, and specially designed components therefor;
- b. “Software” designed for the “development”, “production” or “use” of goods specified in PL9008.a..
- c. “Technology” for the “development”, “production”, or “use” of goods or “software” specified in PL9008.a. or PL9008.b.

N.B. See article 18 of this Order for exceptions from the controls on “technology”.

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

Technical note:

'Submersible vehicles' include manned, unmanned, tethered or untethered vehicles.

Aircraft and related technology

PL9009

The export or “transfer by electronic means” of the following goods or “technology” is prohibited to any destination in Iran:

- a. “Aircraft”, “lighter-than-air vehicles” and steerable parachutes, and related equipment and components, as follows, other than those specified in Schedule 2 to this Order or Annex I to “the dual-use Regulation”:

[^{F140}Note: For the purpose of PL9009.a. “aircraft” includes “UAVs”.]

1. “Aircraft”, “lighter-than-air vehicles” and steerable parachutes;
2. Equipment and components, designed for “aircraft” and “lighter-than-air vehicles”, as follows:
 - a. Airframe structures and components;
 - b. Aero-engines and auxiliary power units (APU)s and specially designed components therefor;
 - c. Avionics and navigation equipment and specially designed components therefor;
 - d. Landing gear and specially designed components therefor, and aircraft tyres;
 - e. Propellers and rotors;
 - f. Transmissions and gearboxes, and specially designed components therefor;
 - g. [^{F141}“UAV”] recovery systems;

- b. [^{F142}This entry is not used];

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- c. “Technology” for the “development”, “production” or “use” of goods specified in PL9009.a.

N.B. See article 18 of this Order for exceptions from the controls on “technology”.

Note: PL9009.c. does not control technical data, drawings or documentation for maintenance activities directly associated with calibration, removal or replacement of damaged or unserviceable goods that are necessary for the continuing airworthiness and safe operation of civil “aircraft”

Textual Amendments

- F140** Words in Sch. 3 inserted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(24)**
- F141** Word in Sch. 3 substituted (7.6.2021) by [The Export Control \(Amendment\) Order 2021 \(S.I. 2021/586\)](#), arts. 1, **2(25)**
- F142** Words in Sch. 3 substituted (10.8.2012) by [The Export Control \(Amendment\) \(No. 2\) Order 2012 \(S.I. 2012/1910\)](#), arts. 1, 2, **Sch. para. 16**

[^{F143}Firearms

N.B. Military firearms and ammunition are controlled in ML1, ML2 and ML3 in Schedule 2.

PL9010 Where the “Firearm Regulation” does not apply, the export of “firearms”, their “parts” and “essential components” and “ammunition”, as follows, is prohibited to any destination outside the European Union:

N.B.: See also the “Firearm Regulation” for the export of “firearms” to non-EU Member States.

- a. “Firearms” other than those specified in ML1 or ML2 of Schedule 2;
Note: PL9010.a. includes pre-1938 “firearms”, post 1937 smooth-bore “firearms” that are not fully automatic or specially designed for military use and post 1937 “firearms” using non-centre fire (e.g. rimfire) cased “ammunition” and which are not of the fully automatic firing type.
- b. “Parts” (including sound suppressors or moderators) or “essential components” specially designed for “firearms” specified in PL9010.a. above;
- c. “Ammunition” specially designed for “firearms” specified in PL9010.a. above;
- d. “Software” designed for “development” or “production” of semi-automatic or pump action type smooth-bore “firearms” manufactured in 1938 or later;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- e. “Technology” for the “development” or “production” of semi-automatic or pump action type smooth-bore “firearms” manufactured in 1938 or later.

N.B.: See article 18 of this Order for exceptions from the controls on “technology”.

Note: PL9010 does not control:

1. “Firearms” manufactured earlier than 1890 and reproductions thereof;
2. “Parts” (including sound suppressors or moderators), “essential components” or “ammunition”, specially designed for “firearms” specified in Note 1 above;
3. “Firearms” to which the “Deactivation Regulation” applies which have been deactivated and marked in accordance with the technical specifications set out in Annex I and II to the Deactivation Regulation;
4. “Firearms” to which the “Deactivation Regulation” does not apply which bear a mark and are certified as having been rendered incapable of discharging any shot, bullet or other missile in accordance with section 8 of the Firearms (Amendment) Act 1988

PL9011 Where the “Firearm Regulation” does not apply, the export of “firearms”, devices, “essential components”, sound suppressors or moderators and “ammunition”, as follows, is prohibited to any destination inside the European Union:

N.B.: See also the Firearm Regulation and PL9010 for exports of “firearms” to non-EU Member States.

- a. “Firearms” other than those specified in ML1 or ML2 of Schedule 2;
Note: PL9011.a. includes pre-1938 “firearms”, post 1937 smooth-bore “firearms” that are not fully automatic or specially designed for military use and post 1937 “firearms” using non-centre fire (e.g. rimfire) cased “ammunition” and which are not of the fully automatic firing type.
- b. “Parts” (including sound suppressors or moderators) or “essential components” specially designed for “firearms” specified in PL9011.a. above;
- c. “Ammunition” specially designed for “firearms” specified in PL9011.a. above;
- d. “Software” designed for the “development” or “production” of semi-automatic or pump action type smooth-bore “firearms” manufactured in 1938 or later;
- e. “Technology” for the “development” or “production” of semi-automatic or pump action type smooth-bore “firearms” manufactured in 1938 or later;

N.B.: See article 18 of this Order for exceptions from the controls on “technology”.

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- f. Devices for firing blanks, irritants, other active substances or pyrotechnic rounds that are capable of being converted to a “firearm”;
- g. Devices for salute or acoustic applications that are capable of being converted to a “firearm”.

Note: PL9011 does not control:

1. “Firearms” manufactured earlier than 1890;
2. “Parts” (including sound suppressors or moderators), “essential components” or “ammunition”, specially designed for “firearms” specified in Note 1 above;
3. “Firearms” to which the “Deactivation Regulation” applies which have been deactivated and marked in accordance with the technical specifications set out in Annexes I and II to the Deactivation Regulation]

Textual Amendments

F143 Words in Sch. 3 substituted (14.9.2018) by [The Export Control \(Amendment\) \(No. 2\) Order 2018 \(S.I. 2018/939\)](#), arts. 1, **2(4)(d)**

[^{F144}Submersible [^{F145}Vehicles] and related goods, software and technology

PL9012 The export or “transfer by electronic means” of the following goods, “software” or “technology” is prohibited to any destination in Russia:

- a. ‘submersible vehicles’, and related systems, equipment and components, as follows, other than those specified in Schedule 2 to this Order or Annex I to “the dual-use Regulation”:
 1. ‘submersible vehicles’ and specially designed components therefor;
 2. Subsea ploughs and specially designed components therefor;
 3. Systems, equipment and components for use with ‘submersible vehicles’ and subsea ploughs, as follows:
 - a. Marine acoustic systems

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

and
equipment,
as follows:

- i. sonar
equipment;
 - ii. velocity
log
equipment;
 - iii.
underwater
altimeters;
- b. Navigation
equipment
specially
designed
for
'submersible
vehicles';
- c. Acoustic
systems
and
equipment
designed
to
determine
the
position of
'submersible
vehicles'
including
via surface
vessels;
- d. Propulsion
motors or
thrusters
for
'submersible
vehicles';
- e. Umbilical
cables and
connectors
therefor,
specially
designed
or
modified
for
'submersible
vehicles';

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- f. Umbilical winches, tow winches and lifting winches;
- g. Tethers and tether systems, for 'submersible vehicles';
- h. Lighting systems specially designed or modified for underwater use;
- i. Underwater vision systems;
- j. Underwater communication systems;
- k. Pressure sensors specially designed for underwater use;
- l. Launch and recovery systems and equipment for deploying 'submersible vehicles' and specially designed components therefor;

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- m. Trenching tools and jetting tools, specially designed or modified for use with ‘submersible vehicles’;
- n. Control systems and equipment specially designed or modified for the remote operation of ‘submersible vehicles’;
- o. Remotely controlled articulated manipulators specially designed or modified for use with ‘submersible vehicles’;
- p. Subsea cable detection systems;
- q. Cable cutting, clamping and handling equipment, specially designed or

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- c. “Software” designed for the “development”, “production” or “use” of goods specified in PL9012.a. and PL9012.b.
- d. “Technology” for the “development”, “production” or “use” of goods or “software” specified in PL9012.a., PL9012.b. or PL9012.c.

N.B.: See article 18 of this Order for exceptions from the controls on “technology”.

Technical Note:

‘Submersible vehicles’ include manned, unmanned, tethered or untethered vehicles.]

[^{F146}

Electronics and related equipment, materials, software and technology

PL9013 The export or “transfer by electronic means” of the following goods, “software” or “technology”, is prohibited to any destination:

- a. Systems, equipment and components, as follows:
 - 1. Complementary Metal Oxide Semiconductor (CMOS) integrated circuits, not controlled in 3A001.a.2. in Annex I to “the dual-use Regulation”, designed to operate at an ambient temperature equal to or less (better) than 4.5 K (-268.65°C).

Note: The status of wafers (finished or unfinished), in which the function has been determined, are to be evaluated against the parameters of PL9013.a.1.

Technical note:

For the purposes of PL9013.a.1., CMOS integrated circuits are also referred to as cryogenic CMOS or cryoCMOS integrated circuits.

- 2. Equipment designed for dry etching, having any of the following:
 - a. Equipment designed or modified for isotropic dry etching, having a largest ‘silicon germanium-to-silicon

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

(SiGe:Si) etch selectivity' of greater than or equal to 100:1; or

b. Equipment designed or modified for anisotropic dry etching, having all of the following:

1. Radio Frequency (RF) power source(s) with at least one pulsed RF output;

2. One or more fast gas switching valve(s) with switching time less than 300 ms; and

3. Electrostatic chuck with 20 or more individually controllable variable temperature elements.

Note 1: PL9013.a.2. includes etching by 'radicals', ions, sequential reactions or non-sequential reactions.

Note 2: PL9013.a.2.b. includes etching using RF pulse excited plasma, pulsed duty cycle excited plasma, pulsed voltage on electrodes modified

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

plasma, cyclic injection and purging of gases combined with a plasma, plasma atomic layer etching or plasma quasi-atomic layer etching.

Technical Notes:

1. *For the purposes of PL9013.a.2.a., 'silicon germanium-to-silicon (SiGe:Si) etch selectivity' is measured for a Ge concentration of greater than or equal to 30% (Si_{0.70}Ge_{0.30}).*
2. *For the purposes of PL9013.a.2. Note 1., 'radical' is defined as an atom, molecule or ion that has an unpaired electron in an open electron shell configuration.*
3. Scanning Electron Microscope (SEM) equipment designed for imaging semiconductor devices or integrated circuits, having all of the following:
 - a. Stage placement accuracy less (better) than 30 nm,

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- b. Stage positioning measurement performed using laser interferometry,
 - c. Position calibration within a Field-Of-View (FOV) based on laser interferometer length-scale measurement,
 - d. Collection and storage of images having more than 2×10^8 pixels,
 - e. FOV overlap of less than 5% in vertical and horizontal directions,
 - f. Stitching overlap of FOV less than 50 nm, and
 - g. Accelerating voltage more than 21 kV.
- Note 1: PL9013.a.3. includes SEM equipment designed for chip design recovery.*
- Note 2: PL9013.a.3. does not control SEM equipment designed to accept a Semiconductor Equipment and Materials International (SEMI) standard wafer carrier, such as a 200 mm or larger Front Opening Unified Pod (FOUP).*
4. Integrated circuits having an aggregate bidirectional transfer rate of 600 Gbyte/s or more over all inputs and outputs and to or from other integrated circuits, not including volatile memories, and having or being programmable to have any of the following:
- a. One or more digital processor units executing machine instructions having a ‘total processing performance’ of 6000 or more,
 - b. One or more digital ‘primitive computational units’, excluding those units contributing to the execution of machine instructions specified in PL9013.a.4.a., having a ‘total processing performance’ of 6000 or more,

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- c. One or more analogue 'primitive computational units' having a 'total processing performance' of 6000 or more, or
- d. Any combination of digital processor units and 'primitive computational units' on an integrated circuit whose 'total processing performance' across PL9013.a.4.a., PL9013.a.4.b. and PL9013.a.4.c. add up to 6000 or more.

Note: Integrated circuits specified in PL9013.a.4. include Graphical Processor Units (GPUs), Tensor Processing Units (TPUs), neural processors, in-memory processors, vision processors, text processors, co-processors/accelerators, adaptive processors, Field Programmable Logic Devices (FPLDs) and Application-Specific Integrated Circuits (ASICs).

Technical Notes:

For the purposes of PL9013.a.4.,

1. 'Total Processing Performance' ('TPP') is the bit length per operation multiplied by the processing performance measured in Tera Operations Per Second (TOPS) over all processor units on the integrated circuit. For example, the 'TPP' for an integrated circuit having two digital processor units that are each capable of 200 TOPS at 16 bits is 6400 (2 processors \times 200 TOPS \times 16 bits = 6400). In PL9013.a.4.c., the 'TPP' of each analogue 'primitive computational unit' is the processing performance expressed in TOPS multiplied by 8.
2. A 'primitive computational unit' is defined as containing

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

zero or more modifiable weights, receiving one or more inputs, and producing one or more outputs. A computational unit is said to perform $2N-1$ operations whenever an output is updated based on N inputs, where each modifiable weight contained in the processing element counts as an input. Each input, weight, and output might be an analogue signal level or a scalar digital value represented using one or more bits. Such units include:

Artificial neurons

Multiply accumulate (MAC) units

Floating-Point Units (FPUs)

Analogue multiplier units

Processing units using memristors, spintronics, or magnonics

Processing units using photonics or non-linear optics

Processing units using analogue or multi-level non-volatile weights

Multi-value or multi-level units

Spiking units

3. *Operations relevant to the calculation of TOPS include both scalar operations*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

and the scalar constituents of composite operations such as vector operations, matrix operations, and tensor operations. Scalar operations include integer operations, floating-point operations (often measured by FLOPS), fixed-point operations, bit-manipulation operations and/or bitwise operations.

4. *The rate of TOPS is the maximum value theoretically possible when all processing units are operating simultaneously. The rate of TOPS and aggregate bidirectional transfer rate is assumed to be the highest value the manufacturer claims in a manual or brochure for the chip.*

5. *The bit length of an operation is equal to the highest bit length of any input or output of that operation. Additionally, if the processor unit is designed for operations that achieve different bits \times TOPS values, the highest bits \times TOPS value should be used.*

6. *For processing units that provide processing of both sparse and dense matrices, the TOPS values are the values for processing of dense matrices (e.g., without sparsity).*

N.B.: For “digital computers” and “electronic assemblies” containing integrated circuits specified in PL9013.a.4., see PL9014.a.2

5. Parametric signal amplifiers having all of the following:

a. Designed for operation at an ambient temperature below 1 K (-272.15°C),

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- b. Designed for operation at any frequency from 2 GHz up to and including 15 GHz, and
- c. A noise figure less (better) than 0.015 dB at any frequency from 2 GHz up to and including 15 GHz at 1 K (-272.15°C).

Note: Parametric signal amplifiers include Travelling Wave Parametric Amplifiers (TWPAs).

Technical Note:

For the purposes of PL9013.a.5., parametric signal amplifiers may also be referred to as Quantum-Limited Amplifiers (QLAs).

6. Cryogenic cooling systems and components, as follows:

- a. Systems rated to provide a cooling power greater than or equal to 600 μ W at or below a temperature of 0.1 K (-273.05°C) for a period of greater than 48 hours;
- b. Two-stage pulse tube cryocoolers rated to maintain a temperature below 4 K (-269.15°C) and provide a cooling power greater than or equal to 1.5 W at or below a temperature of 4.2 K (-268.95°C).

7. ‘Extreme Ultraviolet’ (‘EUV’) masks and ‘EUV’ reticles, designed for integrated circuits, other than those specified in 3B001.g. in Annex I to “the dual-use Regulation”, and having a mask ‘substrate blank’ specified in 3B001.j. in Annex I to “the dual-use Regulation”;

Technical Notes:

For the purposes of PL9013.a.7.,

- 1. *Masks or reticles with a mounted pellicle are considered masks and reticles. A pellicle is a membrane integrated with a frame, designed to protect a mask or reticle from particle contamination.*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

2. *'Extreme Ultraviolet' ('EUV') refers to electromagnetic spectrum wavelengths greater than 5 nm and less than 124 nm.*
 3. *'Substrate blanks' are monolithic compounds with dimensions suitable for the production of optical elements such as mirrors or optical windows.*
8. Cryogenic wafer probing equipment having all of the following:
- a. Designed to test devices at temperatures less than or equal to 4.5 K (-268.65°C); and
 - b. Designed to accommodate wafer diameters greater than or equal to 100 mm.
- b. Materials as follows:
1. Epitaxial materials consisting of a 'substrate' having at least one epitaxially grown layer of any of the following:
 - a. Silicon having an isotopic impurity less than 0.08% of silicon isotopes other than silicon-28 or silicon-30; or
 - b. Germanium having an isotopic impurity less than 0.08% of germanium isotopes other than germanium-70, germanium-72, germanium-74, or germanium-76.
 2. Fluorides, hydrides, or chlorides of silicon or germanium, containing any of the following:
 - a. Silicon having an isotopic impurity less than 0.08% of silicon isotopes other than silicon-28 or silicon-30; or
 - b. Germanium having an isotopic impurity less than 0.08% of germanium isotopes other than germanium-70, germanium-72, germanium-74, or germanium-76.

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

3. Silicon, silicon oxides, germanium or germanium oxides, containing any of the following:
 - a. Silicon having an isotopic impurity less than 0.08% of silicon isotopes other than silicon-28 or silicon-30; or
 - b. Germanium having an isotopic impurity less than 0.08% of germanium isotopes other than germanium-70, germanium-72, germanium-74, or germanium-76.

Note:

PL9013.b.3. includes 'substrates', lumps, ingots, boules and preforms.

Technical Note:

For the purposes of PL9013.b., 'substrate' is a sheet of base material with or without an interconnection pattern and on which or within which "discrete components" or integrated circuits or both can be located.

- c. "Software" as follows:
 1. "Software" specially designed for the "development" or "production" of equipment specified in PL9013.a.2., PL9013.a.3., PL9013.a.5., PL9013.a.7. or PL9013.a.8.
 2. "Software" specially designed for the "use" of equipment specified in PL9013.a.2.
 3. "Software" designed to extract 'Geometrical Database Standard II' ('GDSII') or equivalent standard layout data and perform layer-to-layer alignment from Scanning Electron Microscope (SEM) images, and generate multi-layer 'GDSII' data or the circuit netlist.

Technical Note:

For the purposes of PL9013.c.3., 'Geometrical Database Standard II' ('GDSII') is a database file format for data exchange of integrated circuit or integrated circuit layout artwork.

- d. "Technology" as follows:
 1. "Technology" according to the General Technology Note in Annex I to "the dual-use Regulation" for the "development" or "production" of equipment or materials specified in PL9013.a.1., PL9013.a.2., PL9013.a.3.,

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

PL9013.a.4., PL9013.a.5., PL9013.a.6., PL9013.a.7., PL9013.a.8. or PL9013.b.

Note: PL9013.d.1. does not control “Process Design Kits” (“PDKs”).

2. “Technology” according to the General Technology Note in Annex I to “the dual-use Regulation” for the “development” or “production” of integrated circuits or devices, using ‘Gate all-around Field-Effect Transistor’ (‘GAAFET’) structures.

Note 1: PL9013.d.2. includes ‘process recipes’.

Technical Note:

For the purposes of PL9013.d.2. Note 1., a ‘process recipe’ is a set of conditions and parameters for a particular process step.

Note 2: PL9013.d.2. does not control tool qualification or maintenance “technology”.

Note 3: PL9013.d.2. does not control “Process Design Kits” (“PDKs”).

Technical Note:

For the purposes of PL9013.d.2., ‘Gate all-around Field-Effect Transistor’ (‘GAAFET’) means a device having a single or multiple semiconductor conduction channel element(s) with a common gate structure that surrounds and controls current in all of the semiconductor conduction channel elements.

Note: This definition includes nanosheet or nanowire field-effect and surrounding gate transistors and other ‘GAAFET’ semiconductor channel element structures.

Computers and related equipment, materials, software and technology

PL9014 The export or “transfer by electronic means” of the following goods, “software” or “technology”, is prohibited to any destination:

- a. Systems, equipment and components, as follows:

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

1. Quantum computers and related “electronic assemblies” and components therefor, as follows:
 - a. Quantum computers as follows:
 1. Quantum computers supporting 34 or more, but fewer than 100, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 10^{-4} ;
 2. Quantum computers supporting 100 or more, but fewer than 200, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 10^{-3} ;
 3. Quantum computers supporting 200 or more, but fewer than 350, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 2×10^{-3} .

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

4. Quantum computers supporting 350 or more, but fewer than 500, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 3×10^{-3} ,
5. Quantum computers supporting 500 or more, but fewer than 700, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 4×10^{-3} ,
6. Quantum computers supporting 700 or more, but fewer than 1,100, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 5×10^{-3} ,
7. Quantum computers

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

supporting 1,100 or more, but fewer than 2,000, ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’, and having a ‘C-NOT error’ of less than or equal to 6×10^{-3} .

8. Quantum computers supporting 2,000 or more ‘fully controlled’, ‘connected’ and ‘working’ ‘physical qubits’;

- b. Qubit devices and qubit circuits, containing or supporting arrays of ‘physical qubits’, and specially designed for items specified in PL9014.a.1.a.;
- c. Quantum control components and quantum measurement devices, specially designed for items specified in PL9014.a.1.a.

Note 1: PL9014.a.1. includes circuit model (or gate-based) and one-way (or measurement-based) quantum computers.

Note 2: PL9014.a.1. does not control adiabatic (or annealing) quantum computers.

Note 3: Items specified in PL9014.a.1. may not necessarily physically contain any qubits. For example, quantum computers based on photonic schemes do not permanently contain a physical item that can be identified as a qubit. Instead, the photonic qubits are

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

generated while the computer is operating and then later discarded.

Note 4: *PL9014.a.1.b. includes the following:*

semiconductor, superconducting, and photonic qubit chips and chip arrays;

surface ion trap arrays;

other qubit confinement technologies; and

coherent interconnects between such items.

Note 5: *PL9014.a.1.c. includes items designed for calibrating, initialising, manipulating or measuring the resident qubits of a quantum computer.*

Technical Notes:

For the purposes of PL9014.a.1.:

1. *A 'physical qubit' is a two-level quantum system used to represent the elementary unit of quantum logic by means of manipulations and measurements that are not error corrected. 'Physical qubits' are distinguished from logical qubits, in that logical qubits are error-corrected qubits comprised of many 'physical qubits'.*
2. *'Fully controlled' means the 'physical qubit' can be calibrated, initialised, gated, and read out, as necessary.*
3. *'Connected' means that two-qubit gate operations can be performed between any arbitrary pair of the available*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- ‘working’ ‘physical qubits’.*
This does not necessarily entail all-to-all connectivity.
4. *‘Working’ means that the ‘physical qubit’ performs universal quantum computational work according to the system specifications for qubit operational fidelity.*
 5. *Supporting 34 or more ‘fully controlled’, ‘connected’, ‘working’ ‘physical qubits’ refers to the capability of a quantum computer to confine, control, measure and process the quantum information embodied in 34 or more ‘physical qubits’.*
 6. *‘C-NOT error’ is the average physical gate error for the nearest-neighbour two-‘physical qubit’ Controlled-NOT (C-NOT) gates.*
2. Computers, “electronic assemblies” and components containing one or more integrated circuits specified in PL9013.a.4.
- Note: Computers include “digital computers”, hybrid computers, and analogue computers.*
- b. Materials as follows:
This entry is not used.
- c. “Software” as follows:
1. “Software” specially designed or modified for the “development” or “production” of equipment specified in PL9014.a.1.b., PL9014.a.1.c. or PL9014.a.2.
- d. “Technology” as follows:
1. “Technology” according to the General Technology Note in Annex I to “the dual-use Regulation” for the “development” or “production” of equipment specified in PL9014.a.1.b., PL9014.a.1.c. or PL9014.a.2, or software specified in PL9014.c.1.
 2. “Technology” according to the General Technology Note in Annex I to “the dual-use

Regulation” for the “use” of equipment specified in PL9014.a.2.

Materials processing and related equipment, materials, software and technology

PL9015 The export or “transfer by electronic means” of the following goods, “software” or “technology”, is prohibited to any destination:

- a. Systems, equipment and components, as follows:
 1. Additive manufacturing equipment, designed to produce metal or metal alloy components, having all of the following, and specially designed components therefor:
 - a. having at least one of the following consolidation sources:
 1. ‘Lasers’;
 2. Electron beam; or
 3. Electric arc;
 - b. having a controlled process atmosphere of any of the following:
 1. Inert gas; or
 2. Vacuum (equal to or less than 100 Pa);
 - c. having any of the following 'in-process monitoring' equipment in a 'co-axial configuration' or 'paraxial configuration':
 1. Imaging camera with a peak response in the wavelength range exceeding 380 nm but not exceeding 14,000 nm;
 2. Pyrometer designed to measure temperatures greater than

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- 1,273.15 K
(1,000°C); or
3. Radiometer or spectrometer with a peak response in the wavelength range exceeding 380 nm but not exceeding 3,000 nm; and
- d. A closed loop control system designed to modify the consolidation source parameters, build path, or equipment settings during the build cycle in response to feedback from 'in-process monitoring' equipment specified in PL9015.a.1.c.

Technical Notes

For the purposes of PL9015.a.1.,

1. 'Laser' is an item that produces spatially and temporally coherent light through amplification by stimulated emission of radiation.
2. 'In-process monitoring', also known as in-situ process monitoring, pertains to the observation and measurement of the additive manufacturing process including electromagnetic or thermal emissions from the melt pool.
3. 'Co-axial configuration', also known as on-axis or inline configuration, pertains to one or more sensors that are mounted in an optical path shared by the 'laser' consolidation source.
4. 'Paraxial configuration' pertains to one or more sensors that are physically mounted onto or integrated into the 'laser', electron beam

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

or electric arc consolidation source component.

5. *For both ‘co-axial configuration’ and ‘paraxial configuration’, the field of view of the sensor(s) is fixed to the moving reference frame of the consolidation source and moves in the same scan trajectories of the consolidation source throughout the build process.*
- b. Materials as follows:
This entry is not used.
- c. “Software” as follows:
1. “Software” specially designed or modified for the “development” or “production” of equipment specified in PL9015.a.1.
- d. “Technology” as follows:
1. “Technology” according to the General Technology Note in Annex I to “the dual-use Regulation” for the “development” or “production” of equipment specified in PL9015.a.1. or software specified in PL9015.c.1.
 2. “Technology”, not specified in Annex I to “the dual-use Regulation”, for the “development” or “production” of ‘coating systems’ having all of the following:
 - a. Designed to protect ceramic ‘matrix’ ‘composite’ materials specified in 1C007 in Annex I to “the dual-use Regulation” from corrosion; and
 - b. Designed to operate at temperatures exceeding 1,373.15 K (1,100#).

Technical Notes:

For the purposes of PL9015.d.2.:

1. *‘Coating systems’ consist of one or more layers (e.g., bond, interlayer, top coat) of material deposited on the substrate.*
2. *‘Matrix’ means a substantially continuous phase that fills the space between particles, whiskers or fibres.*

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

3. *‘Composite’ means a ‘matrix’ and an additional phase or additional phases consisting of particles, whiskers, fibres or any combination thereof, present for a specific purpose or purposes.}}*

Textual Amendments

- F144** Words in Sch. 3 inserted (14.8.2019) by [The Export Control \(Amendment\) \(No. 2\) Order 2019 \(S.I. 2019/1159\)](#), arts. 1, 2
- F145** Word in Sch. 3 substituted (31.3.2023) by [The Export Control \(Military and Dual-Use Lists\) \(Amendment\) Regulations 2023 \(S.I. 2023/302\)](#), regs. 1, 4(2)
- F146** Words in Sch. 3 inserted (1.4.2024) by [The Export Control \(Amendment\) Regulations 2024 \(S.I. 2024/346\)](#), regs. 1(1), 2(3)(b)

SCHEDULE 4

Articles 2, 13, 14, 16 and 17

COUNTRIES AND DESTINATIONS SUBJECT
TO STRICTER EXPORT OR TRADE CONTROLS

PART 1

EMBARGOED AND NO EXCEPTION FOR TRANSIT

Democratic People's Republic of Korea
Iran

PART 2

EMBARGOED AND SUBJECT TO TRANSIT
CONTROL FOR MILITARY GOODS

Armenia
Azerbaijan
[^{F147}Belarus]
Burma (Myanmar)
[^{F148}Central African Republic]
[^{F149}China (People's Republic other than the Special Administrative Regions)]
Democratic Republic of the Congo
[^{F150}Hong Kong Special Administrative Region]
F151
...
F152
...

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

F153
...

Lebanon

[^{F154}Libya]

[^{F155}Macao Special Administrative Region]

[^{F156}Russia]

[^{F157}South Sudan]

Sudan

F158
...

F159
...

[^{F160}Venezuela]

Zimbabwe

Textual Amendments

- F147** Word in Sch. 4 Pt. 2 inserted (5.9.2011) by [The Export Control \(Belarus\) and \(Syria Amendment\) Order 2011 \(S.I. 2011/2010\)](#), arts. 1(1), **8(a)**
- F148** Words in Sch. 4 Pt. 2 inserted (6.5.2016) by [The Export Control \(Iran Sanctions\) Order 2016 \(S.I. 2016/503\)](#), arts. 1(1), **18(b)**
- F149** Words in Sch. 4 Pt. 2 inserted (19.5.2022) by [The Export Control \(Amendment\) Order 2022 \(S.I. 2022/491\)](#), arts. 1(1), **2(10)(a)**
- F150** Words in Sch. 4 Pt. 2 inserted (19.5.2022) by [The Export Control \(Amendment\) Order 2022 \(S.I. 2022/491\)](#), arts. 1(1), **2(10)(b)**
- F151** Word in Sch. 4 Pt. 2 omitted (30.6.2019) by virtue of [The Export Control \(Amendment\) Order 2019 \(S.I. 2019/989\)](#), arts. 1, **2(6)**
- F152** Word in Sch. 4 Pt. 2 omitted (11.8.2015) by virtue of [The Export Control \(Democratic Republic of Congo Sanctions and Miscellaneous Amendments and Revocations\) Order 2015 \(S.I. 2015/1546\)](#), arts. 1(1), **10(a)**
- F153** Words in Sch. 4 Pt. 2 omitted (22.2.2017) by virtue of [The Export Control \(North Korea Sanctions and Iran, Ivory Coast and Syria Amendment\) Order 2017 \(S.I. 2017/83\)](#), arts. 1, **17(a)**
- F154** Word in Sch. 4 Pt. 2 inserted (18.3.2011) by [The Export Control \(Libya\) Order 2011 \(S.I. 2011/825\)](#), arts. 1(1), **8(a)**
- F155** Words in Sch. 4 Pt. 2 inserted (19.5.2022) by [The Export Control \(Amendment\) Order 2022 \(S.I. 2022/491\)](#), arts. 1(1), **2(10)(c)**
- F156** Word in Sch. 4 Pt. 2 inserted (26.9.2014) by [The Export Control \(Russia, Crimea and Sevastopol Sanctions\) Order 2014 \(S.I. 2014/2357\)](#), arts. 1(1), **13(a)**
- F157** Words in Sch. 4 Pt. 2 inserted (30.12.2011) by [The Export Control \(Sudan and South Sudan Sanctions\) and \(Miscellaneous Amendments\) Regulations 2011 \(S.I. 2011/2925\)](#), regs. 1(1), **8**
- F158** Word in Sch. 4 Pt. 2 omitted (23.10.2023) by virtue of [The Export Control \(Amendment\) \(No. 2\) Regulations 2023 \(S.I. 2023/1048\)](#), regs. 1(1), **2**
- F159** Word in Sch. 4 Pt. 2 revoked (29.3.2010) by [The Export Control \(Uzbekistan\) Order 2010 \(S.I. 2010/615\)](#), arts. 1, **3**
- F160** Word in Sch. 4 Pt. 2 inserted (26.2.2018) by [The Export Control \(Venezuela Sanctions\) Order 2018 \(S.I. 2018/108\)](#), arts. 1(1), **10(a)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

PART 3

SUBJECT TO TRANSIT CONTROL FOR MILITARY GOODS

Afghanistan

Argentina

Burundi

F161
...

[^{F162}Haiti]

Iraq

F163
...

F164
...

Rwanda

F165
...

Somalia

Tanzania

Uganda

[^{F166}Yemen]

Textual Amendments

- F161** Words in Sch. 4 Pt. 3 omitted (19.5.2022) by virtue of The Export Control (Amendment) Order 2022 (S.I. 2022/491), arts. 1(1), **2(1)(a)**
- F162** Word in Sch. 4 Pt. 3 inserted (13.7.2023) by The Export Control (Amendment) Regulations 2023 (S.I. 2023/695), regs. 1(1), **2(2)**
- F163** Word in Sch. 4 Pt. 3 omitted (12.8.2016) by virtue of The Export Control (Libya Sanctions) Order 2016 (S.I. 2016/787), arts. 1, **11(a)**
- F164** Words in Sch. 4 Pt. 3 omitted (19.5.2022) by virtue of The Export Control (Amendment) Order 2022 (S.I. 2022/491), arts. 1(1), **2(1)(b)**
- F165** Words in Sch. 4 Pt. 3 omitted (11.8.2015) by virtue of The Export Control (Democratic Republic of Congo Sanctions and Miscellaneous Amendments and Revocations) Order 2015 (S.I. 2015/1546), arts. 1(1), **10(b)**
- F166** Word in Sch. 4 Pt. 3 inserted (27.8.2015) by The Export Control (Yemen Sanctions) Regulations 2015 (S.I. 2015/1586), regs. 1(1), **7(a)**

PART 4

SUBJECT TO TRANSIT CONTROL FOR CATEGORY B GOODS

Albania

[^{F167}Angola]

F168
...

Benin

Bosnia/Herzegovina

Burkina Faso

Cameroon
Cape Verde
F169 ...
Chad
Colombia
Congo (Brazzaville)
Dubai
East Timor (Timor-Leste)
[^{F170}Eritrea]
F171 ...
Ethiopia
Gambia
Georgia
Ghana
[^{F172}Guinea]
F173 ...
Guinea Bissau
F174 ...
F175 ...
[^{F176}Ivory Coast (Côte d'Ivoire)]
Jamaica
Kenya
Krygyzstan
[^{F177}Liberia]
F178 ...
Mali
Mauritania
Moldova
Montenegro
Morocco
[^{F179}Namibia]
Nepal
Niger
Nigeria
Oman
Pakistan
F180 ...
Senegal

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

Serbia
 [^{F181}Sierra Leone]
 Sri Lanka
 [^{F182}Syria]
 F183 ...
 Taiwan
 Tajikistan
 Togo
 Trinidad & Tobago
 Turkmenistan
 Ukraine
 [^{F184}Uzbekistan]
 F185 ...
 F186 ...

Textual Amendments

- F167** Word in Sch. 4 Pt. 4 inserted (16.6.2009) by [The Export Control \(Amendment\) Order 2009 \(S.I. 2009/1305\)](#), arts. 1(1), **5(a)**
- F168** Word in Sch. 4 Pt. 4 omitted (5.9.2011) by virtue of [The Export Control \(Belarus\) and \(Syria Amendment\) Order 2011 \(S.I. 2011/2010\)](#), arts. 1(1), **8(b)**
- F169** Words in Sch. 4 Pt. 4 omitted (6.5.2016) by virtue of [The Export Control \(Iran Sanctions\) Order 2016 \(S.I. 2016/503\)](#), arts. 1(1), **18(a)**
- F170** Word in Sch. 4 Pt. 4 inserted (1.10.2019) by [The Export Control \(Sanctions\) \(Amendment\) Order 2019 \(S.I. 2019/1236\)](#), arts. 1(2), **2**
- F171** Word in Sch. 4 Pt. 4 omitted (31.8.2010) by virtue of [The Export Control \(Amendment\) \(No. 2\) Order 2010 \(S.I. 2010/2007\)](#), arts. 1(1), **3(b)**
- F172** Word in Sch. 4 Pt. 4 inserted (11.8.2015) by [The Export Control \(Democratic Republic of Congo Sanctions and Miscellaneous Amendments and Revocations\) Order 2015 \(S.I. 2015/1546\)](#), arts. 1(1), **10(c)(i)**
- F173** Word in Sch. 4 Pt. 4 omitted (11.11.2009) by virtue of [The Export Control \(Amendment\) \(No. 4\) Order 2009 \(S.I. 2009/2969\)](#), arts. 1, **2(b)**
- F174** Word in Sch. 4 Pt. 4 omitted (13.7.2023) by virtue of [The Export Control \(Amendment\) Regulations 2023 \(S.I. 2023/695\)](#), regs. 1(1), **2(3)**
- F175** Words in Sch. 4 Pt. 4 omitted (19.5.2022) by virtue of [The Export Control \(Amendment\) Order 2022 \(S.I. 2022/491\)](#), arts. 1(1), **2(12)**
- F176** Words in Sch. 4 Pt. 4 inserted (22.2.2017) by [The Export Control \(North Korea Sanctions and Iran, Ivory Coast and Syria Amendment\) Order 2017 \(S.I. 2017/83\)](#), arts. 1, **17(b)(i)**
- F177** Word in Sch. 4 Pt. 4 inserted (12.8.2016) by [The Export Control \(Libya Sanctions\) Order 2016 \(S.I. 2016/787\)](#), arts. 1, **11(b)**
- F178** Word in Sch. 4 Pt. 4 omitted (18.3.2011) by virtue of [The Export Control \(Libya\) Order 2011 \(S.I. 2011/825\)](#), arts. 1(1), **8(b)**
- F179** Word in Sch. 4 Pt. 4 inserted (16.6.2009) by [The Export Control \(Amendment\) Order 2009 \(S.I. 2009/1305\)](#), arts. 1(1), **5(b)**
- F180** Word in Sch. 4 Pt. 4 omitted (26.9.2014) by virtue of [The Export Control \(Russia, Crimea and Sevastopol Sanctions\) Order 2014 \(S.I. 2014/2357\)](#), arts. 1(1), **13(b)**

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

- F181** Words in Sch. 4 Pt. 4 inserted (11.8.2015) by The Export Control (Democratic Republic of Congo Sanctions and Miscellaneous Amendments and Revocations) Order 2015 (S.I. 2015/1546), arts. 1(1), **10(c)(ii)**
- F182** Word in Sch. 4 Pt. 4 inserted (22.2.2017) by The Export Control (North Korea Sanctions and Iran, Ivory Coast and Syria Amendment) Order 2017 (S.I. 2017/83), arts. 1, **17(b)(ii)**
- F183** Word in Sch. 4 Pt. 4 omitted (25.5.2011) by virtue of The Export Control (Syria and Miscellaneous Amendments) Order 2011 (S.I. 2011/1304), arts. 1(1), **8(b)**
- F184** Word in Sch. 4 Pt. 4 inserted (29.3.2010) by The Export Control (Uzbekistan) Order 2010 (S.I. 2010/615), arts. 1, **3**
- F185** Word in Sch. 4 Pt. 4 omitted (26.2.2018) by virtue of The Export Control (Venezuela Sanctions) Order 2018 (S.I. 2018/108), arts. 1(1), **10(b)**
- F186** Word in Sch. 4 Pt. 4 omitted (27.8.2015) by virtue of The Export Control (Yemen Sanctions) Regulations 2015 (S.I. 2015/1586), regs. 1(1), **7(b)**

^{F187}SCHEDULE 5

Article 30

.....

- Textual Amendments**
- F187** Sch. 5 omitted (22.2.2017) by virtue of The Export Control (Amendment) Order 2017 (S.I. 2017/85), arts. 1, **2(10)**

SCHEDULE 6

Article 45

REVOCATIONS

<i>(1)</i> Order or Regulations revoked	<i>(2)</i> References	<i>(3)</i> Extent of revocation
The Export of Goods, Transfer of Technology and Provision of Technical Assistance (Control) Order 2003	S.I. 2003/2764	The whole Order
The Trade in Goods (Control) Order 2003	S.I. 2003/2765	The whole Order
The Trade in Controlled Goods (Embargoed Destinations) Order 2004	S.I. 2004/318	The whole Order
The Trade in Controlled Goods (Embargoed Destinations) (Amendment) Order 2004	S.I. 2004/1049	The whole Order
The Export of Goods, Transfer of Technology and Provision of Technical Assistance (Control) (Amendment) Order 2004	S.I. 2004/1050	The whole Order
The Export of Goods, Transfer of Technology and Provision of Technical Assistance (Control) (Amendment No. 2) Order 2004	S.I. 2004/2561	The whole Order
The Export Control (Libya Embargo) Order 2004	S.I. 2004/2741	The whole Order

Changes to legislation: There are currently no known outstanding effects for the The Export Control Order 2008. (See end of Document for details)

The Export Control (Iraq and Ivory Coast) Order 2005	S.I. 2005/232	In article 1, the definition of “the 2003 Order” Articles 6 and 7
The Trade in Goods (Control) (Amendment) Order 2005	S.I. 2005/443	The whole Order
The Trade in Controlled Goods (Embargoed Destinations) (Amendment) Order 2005	S.I. 2005/445	The whole Order
The Export of Goods, Transfer of Technology and Provision of Technical Assistance (Control) (Amendment) Order 2005	S.I. 2005/468	The whole Order
The Export Control (Uzbekistan) Order 2005	S.I. 2005/3257	In article 1, the definition of “the 2003 Order” Articles 7 and 8
The Export Control (Bosnia and Herzegovina) Order 2006	S.I. 2006/300	The whole Order
The Export Control Order 2006	S.I. 2006/1331	The whole Order
The Export Control (Security and Para-military Goods) Order 2006	S.I. 2006/1696	The whole Order
The Technical Assistance Control Regulations 2006	S.I. 2006/1719	The whole Regulations
The Export Control (Amendment) Order 2006	S.I. 2006/2271	The whole Order
The Export Control (Lebanon) Order 2006	S.I. 2006/2683	The whole Order
The Export Control (North Korea) Order 2007	S.I. 2007/1334	In article 1, the definitions of “the 2003 Order” and “the 2004 Order” Articles 2 and 3
The Export and Trade Control Order 2007	S.I. 2007/1863	The whole Order
The Export Control (Security and Para-military Goods) Order 2008	S.I. 2008/639	The whole Order
The Export of Goods, Transfer of Technology and Provision of Technical Assistance (Control) (Amendment) Order 2008	S.I. 2008/1281	The whole Order
The Trade in Goods (Categories of Controlled Goods) Order 2008	S.I. 2008/1805	The whole Order
The Export of Goods, Transfer of Technology and Provision of Technical Assistance (Control) (Amendment) (No. 2) Order 2008	S.I. 2008/3161	The whole Order

Changes to legislation:

There are currently no known outstanding effects for the The Export Control Order 2008.