

SCHEDULES

SCHEDULE 3

Regulation 25(1)

Goods and technology relating to chemical and biological weapons

PART 1

Certain dual-use goods and dual-use technology

Dual-use goods

- 1.—(1) Any thing which is specified in or by the following Dual-Use Codes—
 - (a) 1A004;
 - (b) 1C350;
 - (c) 1C351;
 - (d) 1C353;
 - (e) 1C354;
 - (f) 1C450;
 - (g) 2B350;
 - (h) 2B351;
 - (i) 2B352;
 - (j) 9A012;
 - (k) 9A350.

Software

2. Any software which is specified in or by the following Dual-Use Codes—
 - (a) 1D003;
 - (b) 2D351;
 - (c) 9D001, provided that it is specially designed or modified for the development of any goods or technology specified in or by Dual-Use Code 9A012 (paragraph 1(j));
 - (d) 9D002, provided that it is specially designed or modified for the production of any thing specified in or by Dual-Use Code 9A012 (paragraph 1(j)).

Technology

- 3.—(1) Any technology which is specified in or by the following Dual-Use Codes—
 - (a) 1E001, provided that it is for the development or production of any thing specified in or by any of the following Dual-Use Codes—
 - (i) 1A004 (paragraph 1(a));

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- (ii) 1C350 to 1C354 (paragraph 1(b) to (e));
 - (iii) 1C450 (paragraph 1(f));
 - (b) 2E001, provided that it is for the development of any thing specified in or by any of the following Dual-Use Codes—
 - (i) 2B350 (paragraph 1(g));
 - (ii) 2B351 (paragraph 1(h));
 - (iii) 2B352 (paragraph 1(i));
 - (iv) 2D351 (paragraph 2(a));
 - (c) 2E002, provided that it is for the production of any thing specified in or by any of the following Dual-Use Codes—
 - (i) 2B350 (paragraph 1(g));
 - (ii) 2B351 (paragraph 1(h));
 - (iii) 2B352 (paragraph 1(i));
 - (d) 2E301;
 - (e) 9E001, provided that it is for the development of any thing specified in or by either of the following Dual-Use Codes—
 - (i) 9A012 (paragraph 1(j));
 - (ii) 9A350 (paragraph 1(k));
 - (f) 9E002, provided that it is for the production of any thing specified in or by Dual-Use Code 9A350;
 - (g) 9E101(b), provided that it is for the production of UAVs with a range exceeding 300km specified in or by Dual-Use Code 9A012;
 - (h) 9E102, provided that it is for the production of UAVs with a range exceeding 300km specified in or by Dual-Use Code 9A012.
- (2) For the purposes of sub-paragraph (2), “UAV” means unmanned aerial vehicle systems.

PART 2

Weapons-related chemicals and technology

Chemicals

4. Any of the following chemicals at 95% concentration or greater—
- (a) Aluminium chloride (CAS Code 7446-70-0);
 - (b) Arsenic (CAS Code 7440-38-2);
 - (c) Arsenic trioxide (CAS Code 1327-53-3);
 - (d) Bis(2-chloroethyl)ethylamine hydrochloride (CAS Code 3590-07-6);
 - (e) Bis(2-chloroethyl)methylamine hydrochloride (CAS Code 55-86-7);
 - (f) Ethylene dichloride (CAS Code 107-06-2);
 - (g) Picric acid (CAS Code 88-89-1);
 - (h) Nitromethane (CAS Code 75-52-5);
 - (i) Tris(2-chloroethyl)amine hydrochloride (CAS Code 817-09-4).

Software and technology

5. Any technology or software required for the development, production or use of any of the chemicals listed in paragraph 4.

PART 3

Materials, other chemicals and related-technology

Chemicals

6. Any of the following chemicals at 95% concentration or greater—

- (a) Benzil (CAS Code 134-81-6);
- (b) Butyrylcholinesterase;
- (c) 2-bromochloroethane (CAS Code 107-04-0);
- (d) Dichloromethane (CAS Code 75-09-3);
- (e) Diethylamine (CAS Code 109-89-7);
- (f) Diethylenetriamine (CAS Code 111-40-0);
- (g) Diethyl ether (CAS Code 60-29-7);
- (h) Dimethylalanine (CAS Code 121-69-7);
- (i) Dimethyl ether (CAS Code 115-10-6);
- (j) Dimethylaminoethanol (CAS Code 108-01-0);
- (k) Ethyl bromide (CAS Code 74-96-4);
- (l) Ethyl chloride (CAS Code 75-00-3);
- (m) Ethylamine (CAS Code 75-04-7);
- (n) Hexamine (CAS Code 100-97-0);
- (o) Isocyanatomethane (CAS Code 624-83-9);
- (p) Isopropanol (CAS Code 67-63-0);
- (q) Isopropyl bromide (CAS Code 75-26-3);
- (r) Isopropyl ether (CAS Code 108-20-3);
- (s) 2-methoxyethanol (CAS Code 109-86-4);
- (t) Methylamine (CAS Code 74-89-5);
- (u) Methyl bromide (CAS Code 74-83-9);
- (v) Monoisopropylamine (CAS Code 75-31-0);
- (w) Obidoxime chloride (CAS Code 114-90-9);
- (x) Potassium bromide (CAS Code 7758-02-3);
- (y) Pyridine (CAS Code 110-86-1);
- (z) Pyridostigmine bromide (CAS Code 101-26-8);
- (aa) Quinaldine (CAS Code 91-63-4);
- (bb) Sodium bromide (CAS Code 7647-15-6);
- (cc) Sodium metal (CAS Code 7440-23-5);
- (dd) Tributylamine (CAS Code 102-82-9);

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- (ee) Tributylphosphite (CAS Code 102-85-2);
 - (ff) Triethylamine (CAS Code 121-44-8);
 - (gg) Trimethylamine (CAS Code 75-50-3).
7. Any of the following chemicals at 90% concentration or greater—
- (a) Acetone (CAS Code 67-64-1);
 - (b) Acetylene (CAS Code 74-86-2);
 - (c) Ammonia (CAS Code 7664-41-7);
 - (d) Antimony (CAS Code 7440-36-0);
 - (e) Benzaldehyde (CAS Code 100-52-7);
 - (f) Benzoin (CAS Code 119-53-9);
 - (g) 1-Butanol (CAS Code 71-36-3);
 - (h) 2-Butanol (CAS Code 78-92-2);
 - (i) Iso-Butanol (CAS Code 78-83-1));
 - (j) Tert-Butanol (CAS Code 75-65-0);
 - (k) Calcium carbide (CAS Code 75-20-7);
 - (l) Carbon monoxide (CAS Code 630-08-0);
 - (m) Chlorine (CAS Code 7782-50-5);
 - (n) Cyclohexanol (CAS Code 108-93-0);
 - (o) Dicyclohexylamine (CAS Code 101-83-7);
 - (p) Ethanol (CAS Code 64-17-5);
 - (q) Ethylene (CAS Code 74-85-1);
 - (r) Ethylene oxide (CAS Code 75-21-8);
 - (s) Fluoroapatite (CAS Code 1306-05-4);
 - (t) Hydrogen chloride (CAS Code 7647-01-0);
 - (u) Hydrogen sulfide (CAS Code 7783-06-4);
 - (v) Mandelic acid (CAS Code 90-64-2);
 - (w) Methanol (CAS Code 67-56-1);
 - (x) Methyl chloride (CAS Code 74-87-3);
 - (y) Methyl iodide (CAS Code 74-88-4);
 - (z) Methyl mercaptan (CAS Code 74-93-1);
 - (aa) Monoethyleneglycol (CAS Code 107-21-1);
 - (bb) Oxalyl chloride (CAS Code 79-37-8);
 - (cc) Potassium sulphide (CAS Code 1312-73-8);
 - (dd) Potassium thiocyanate (CAS Code 333-20-0);
 - (ee) Sodium hypochlorite (CAS Code 7681-52-9);
 - (ff) Sulphur (CAS Code 7704-34-9);
 - (gg) Sulphur dioxide (CAS Code 7446-09-5);
 - (hh) Sulphur trioxide (CAS Code 7446-11-9);
 - (ii) Thiophosphoryl chloride (CAS Code 3982-91-0);
 - (jj) Tri-isobutyl phosphite (CAS Code 1606-96-8);

(kk) White/yellow phosphorus (CAS Code 12185-10-3).

Materials

8. Floor-mounted fume hoods (walk-in-style) with a minimum nominal width of 2.5 metres.
9. Full face-mask air-purifying and air-supplying respirators, other than any thing which is specified in or by any of the following Dual-Use Codes—
 - (a) 1A004;
 - (b) 2B352(f)(1).
10. Class II biological safety cabinets or isolators with similar performance standards.
11. Batch centrifuges with a rotor capacity of 4 litres or greater, usable with biological materials.
- 12.—(1) Fermenters capable of cultivation of pathogenic micro-organisms or viruses or for toxic production, without the propagation of aerosols, having a capacity of 5 litres or more but less than 20 litres.
 - (2) For the purpose of sub-paragraph (1)—
 - “fermenters” include bioreactors, chemostats and continuous-flow systems;
 - “micro-organisms” has the same meaning that it has in the Dual-Use Regulation.
- 13.—(1) Conventional or turbulent air-flow clean-air rooms and self-contained fan-HEPA or ULPA filter units that may be used for containment facilities at P3 or P4 (BSL 3, BSL 4, L3, L4) containment levels.
 - (2) For the purpose of sub-paragraph (1), “P3 or P4 (BL3, BL4, L3, L4) containment levels” are the levels specified in the World Health Organisation Laboratory Biosafety manual(1).
- 14.—(1) Any of the following chemical manufacturing facilities, equipment and components, other than any thing which is specified in or by Dual-Use Code 2B350—
 - (a) reaction vessels or reactors, with or without agitators, with total internal (geometric) volume greater than 0.1m³ (100 litres) and less than 20m³ (20,000 litres), provided that all surfaces that come in direct contact with the fluid being processed or contained is made from the relevant composition;
 - (b) agitators for use in reaction vessels or reactors specified in paragraph (a), provided that all surfaces that come in direct contact with the fluid being processed or contained is made from the relevant composition;
 - (c) storage tanks, containers or receivers with a total internal (geometric) volume greater than 0.1m³ (100 litres) where all surfaces that come in direct contact with the chemical being processed or contained is made from the relevant composition;
 - (d) heat exchangers or condensers with a heat transfer surface area greater than 0.05m², and less than 30m² and tubes, plates, coils or blocks (cores) designed for such heat exchangers or condensers, provided that all surfaces that come in direct contact with the fluid being processed is made from the relevant composition;
 - (e) distillation or absorption columns of internal diameter greater than 0.1 metre , provided that all surfaces that come in direct contact with the fluid being processed is made from the relevant composition;

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- (f) liquid distributors, vapour distributors or liquid collectors designed for distillation or absorption columns mentioned in sub-paragraph (e);
 - (g) valves with a nominal size greater than 10mm and casings (valve bodies) designed for such valves, provided that all surfaces that come in direct contact with the fluid being processed or contained is made from the relevant composition;
 - (h) multiple-seal and seal-less pumps, with manufacturer's specified maximum flow-rate greater than 0.6m³ per hour, in which all surfaces that come in direct contact with the chemical being processed is made from any of the following materials—
 - (i) ceramics;
 - (ii) ferrosilicon;
 - (iii) stainless steel with either—
 - (aa) more than or equal to 10.5% chromium and less than or equal to 1.2% carbon, or
 - (bb) 20% nickel and 19% chromium or more by weight;
 - (i) casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for pumps mentioned in paragraph (h)(i), (ii) and (iii)(bb);
 - (j) vacuum pumps with a manufacturer's specified maximum flow-rate greater than 1m³ per hour (under standard temperature (0 degree Celsius) and pressure (101.3 kPa) conditions), and casings (pump bodies) and preformed casing-liners, impellers, rotors and jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemical being processed is made from any of the following materials—
 - (i) alloys with more than 25% nickel and 20% chromium by weight;
 - (ii) ceramics;
 - (iii) ferrosilicon;
 - (iv) fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
 - (v) glass (including vitrified or enamelled coatings or glass lining);
 - (vi) graphite or carbon graphite;
 - (vii) nickel or alloys with more than 40% nickel by weight;
 - (viii) stainless steel with 20% nickel and 19% chromium or more by weight;
 - (ix) tantalum or tantalum alloys;
 - (x) titanium or titanium alloys;
 - (xi) zirconium or zirconium alloys;
 - (xii) niobium (columbium) or niobium alloys.
- (2) For the purpose of sub-paragraph (1)—
- “alloys”, when not accompanied by a specific elemental concentration, is understood as identifying those alloys where the identified metal is present in a higher percentage by weight than any other element;
- “carbon graphite” means a composition consisting of amorphous carbon and graphite, in which the graphite content is 8% or more by weight;
- “ferrosilicon” means silicon iron alloys with 8% silicon or more by weight;
- “nominal size” means the smaller of the inlet and outlet diameters;
- “the relevant composition” means stainless steel with either—

- (i) more than or equal to 10.5% chromium and less than or equal to 1.2% carbon, or
 - (ii) 20% nickel and 19% chromium or more by weight;
- (3) For the purposes of sub-paragraph (1), the materials used for diaphragms, gaskets, seals and other implementation of sealing functions—
- (a) in the case of paragraph (d), do not determine the control status of the heat exchanger,
 - (b) in the case of paragraph (g), do not determine the control status of the valve, and
 - (c) in the case of paragraph (j), do not determine the control status of the pump.

15.—(1) Subject to sub-paragraph (2), laboratory equipment for the analysis or detection of chemical substances, including any part or accessory for such equipment.

(2) Sub-paragraph (1) does not apply to any equipment specially designed for medical use or any part or accessory for such equipment.

(3) In this paragraph, the “analysis” of chemical substances can be using both destructive and non-destructive means.

Software and technology

16. Any technology or software which is required to develop, produce or use any item mentioned in this Part.

PART 4

Rules for interpretation

Principal element

17.—(1) Any item (“A”) not listed in any of paragraphs 2 to 12 is included in this Schedule if—

- (a) an item listed in any of paragraphs 2 to 12 is a principal element of A, and
- (b) that principal element can be removed and used separately.

(2) Whether an item is a principal element of any other item shall be determined having regard to quantity, value, technological know-how and any other relevant factors.

Definition of Dual-Use Codes

18. For the purposes of this Schedule—

- (a) a thing is specified in or by a Dual-Use Code if it would be specified in or by that code in accordance with the Dual-Use Regulation;
- (b) a “Dual Use Code” means an alphanumeric code as it used in Annex I of the Dual-Use Regulation.

Interpretation

19.—(1) In this Schedule, a reference to any item includes that item whether it is new or used.

(2) The references in this Schedule to a “CAS Code” followed by a numerical sequence are references to CAS Registry Numbers assigned to chemicals by the Chemical Abstracts Service, a division of the American Chemical Society.

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

“development”;

“production”;

“software”;

“technology”;

“use”.