SCHEDULE

PART 1

"SCHEDULE 2D Regulation 21

Oil refining goods and technology

PART 1

Interpretation

1.—(1) Paragraph 1 of Schedule 3 applies for the purposes of interpreting Part 2.

(2) Terms printed in quotation marks and not defined in this Schedule have the meaning given to them in—

(a) Schedules 2 and 3 to the Export Control Order 2008, or

(b) Annex I of the Dual-Use Regulation,

as applicable.

PART 2

Oil refining goods

2. Any thing falling within—

(a) a commodity code mentioned in column 1 of the following table, and

(b) the description in column 2 corresponding to that code.

Commodity code	*Description*
ex 8479 89 97 ex 8543 70 90	Alkylation and isomerization units
ex 8479 89 97 ex 8543 70 90	Aromatic hydrocarbon production units
ex 8419 40 00	Atmospheric-vacuum crude distillation units (CDU)
ex 8479 89 97 ex 8543 70 90	Catalytic reforming / cracker units
ex 8419 89 98 ex 8419 89 30 ex 8419 89 10	Delayed cokers
ex 8419 89 98	Flexicoking units

Commodity code	*Description*
ex 8419 89 30 ex 8419 89 10	
ex 8479 89 97	Hydrocracking reactors
ex 8419 89 98 ex 8419 89 30 ex 8419 89 10 ex 8479 89 97	Hydrocracking reactor vessels
ex 8479 89 97 ex 8543 70 90	Hydrogen generation equipment
ex 8421 39 15 ex 8421 39 25 ex 8421 39 35 ex 8421 39 85 ex 8479 89 97 ex 8543 70 90	Hydrogen recovery and purification equipment
ex 8479 89 97 ex 8543 70 90	Hydrotreatment equipment/units
ex 8479 89 97 ex 8543 70 90	Naphtha isomerisation units
ex 8479 89 97 ex 8543 70 90	Polymerisation units
ex 8419 89 10 ex 8419 89 30 ex 8419 89 98 ex 8479 89 97 ex 8543 70 90	Refinery fuel gas treatment and sulphur recovery equipment (including amine scrubbing units, sulphur recovery units, tail gas treatment units)
ex 8456 90 00 ex 8479 89 97	Solvent de-asphalting units

Commodity code	*Description*
ex 8543 70 90	
ex 8479 89 97 ex 8543 70 90	Sulphur production units
ex 8479 89 97 ex 8543 70 90	Sulphuric acid alkylation and sulphuric acid regeneration units
ex 8419 89 10 ex 8419 89 30 ex 8419 89 98 ex 8479 89 97 ex 8543 70 90	Thermal cracking units
ex 8479 89 97 ex 8543 70 90	Toluene and heavy aromatics: Transalkylation units
ex 8479 89 97 ex 8543 70 90	Visbreakers
ex 8479 89 97 ex 8543 70 90	Vacuum gas oil hydrocracking units

3. Catalysts used in the following processes for the refining of crude oil to produce petroleum products—

(a) fluid catalytic cracking;

(b) hydroprocessing, including hydrotreating and hydrocracking,

(c) alkylation;

(d) catalytic reforming.

Oil refining technology

4. "Software" for the "development", "production" or "use" of any thing falling within paragraphs 2 and 3.

5. "Technology" for the "development", "production" or "use" of any thing falling within paragraphs 2 to 4.

SCHEDULE 2E Regulation 21

Quantum computing and advanced materials goods and technology PART 1

Interpretation

1.—(1) Terms printed in quotation marks and not defined or interpreted in this Schedule have the meaning given to them in—

(a) Schedules 2 and 3 to the Export Control Order 2008, or

(b) Annex I of the Dual-Use Regulation,

as applicable.

(2) For the purposes of this Schedule, the interpretative notes in Part 2 apply.

PART 2

Quantum computing and advanced materials goods

2. Equipment, "electronic assemblies" and components, specially designed for "quantum computers", quantum electronics, quantum sensors, quantum processing units, qubit circuits, qubit devices or quantum radar systems.

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

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

3. "Cryogenic refrigeration systems" designed to maintain temperatures below 1.1 kelvin for 48 hours or more and related cryogenic refrigeration equipment and components as follows:

(a) pulse tubes;

(b) cryostats;

(c) dewars;

(d) gas handling systems (GHS);

(e) compressors;

(f) control units.

Note: "Cryogenic refrigeration systems" include but are not limited to dilution refrigeration, a diabatic demagnisation refrigerators and laser cooling systems.

4. Ultra-High vacuum ("UHV") equipment as follows—

(a) UHV pumps (sublimation, turbomolecular, diffusion, cryogenic, ion-getter);

(b) UHV pressure gauges.

Note: UHV means 100 nanoPascals (nPa) or lower

5. High quantum efficiency ("QE") photodetectors and sources with a QE greater than 80% in the wavelength range exceeding 300 nanometers but not exceeding 1700 nanometers.

6. Manufacturing equipment as follows—

(a) additive manufacturing equipment for the production of metal parts;

(b) additive manufacturing equipment for "energetic materials", including equipment using ultrasonic extrusion;

(c) vat photopolymerisation additive manufacturing equipment using stereo lithography (SLA) or direct light processing (DLP).

Note: Paragraph 6(a) only applies to the following systems—

(i) *powder-bed systems using selective laser melting (SLM), laser cladding, direct metal laser sintering (DMLS) or electron beam melting (ELB), or*

(ii) *powder-fed systems using laser cladding, direct energy deposition or laser metal deposition.*

7. Metal powders and metal alloy powders specially designed for the additive manufacturing equipment specified in paragraph 6(a).

8. Microscopes, related equipment and detectors, as follows—

(a) scanning electron microscopes (SEM);

(b) scanning auger microscopes;

(c) transmission electron microscopes (TEM);

(d) atomic force microscopes (AFM);

(e) scanning force microscopes (SFM);

(f) equipment and detectors specially designed for use with the microscopes specified in sub-paragraphs (a) to (e), employing any of the following—

(i) X-ray photo spectroscopy (XPS);

(ii) energy-dispersive X-ray spectroscopy (EDX, EDS);

(iii) electron back scatter detector (EBSD) systems;

(iv) electron spectroscopy for chemical analysis (ESCA).

9. "Decapsulation" equipment for semiconductor devices.

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

Quantum computing and advanced materials technology

10. "Software" specially designed or modified for the "development", "production" or "use" of the systems, equipment and components specified in paragraphs 2 to 9.

11. "Software" for digital twins (DT) of additive manufactured products or for the determination of the reliability of additive manufactured products.

12. "Technology" "required" for the "development", "production" or "use" of the systems, equipment, components and software specified in paragraphs 2 to 11."