

SCHEDULE 1
PROHIBITED GOODS

PART III
GROUP 3
INDUSTRIAL GOODS

Technology

2E.—(2E001) Technology required for the development of goods specified in sub-categories 2A, 2B or 2D.

(2E002) **Technology required for the production of goods** specified in sub-categories 2A or 2B.

(2E003) Other **technology**, as follows:

(a) **Technology:**

- (1) For the **development** of interactive graphics as an integrated part in **numerical control** units for preparation or modification of part programmes;
- (2) For the **development** of generators of machine tool instructions (e.g., part programmes) from design data residing inside **numerical control** units;
- (3) For the **development** of integration **software** for incorporation of expert systems for advanced decision support of shop floor operations into **numerical control** units;

(b) **Technology** for metal-working manufacturing processes, as follows:

- (1) **Technology** for the design of tools, dies or fixtures specially designed for the following processes:

- (a) **Superplastic forming;**
- (b) **Diffusion bonding;**
- (c) **Direct-acting hydraulic pressing;**

- (2) Technical data consisting of process methods or parameters as listed below used to control:

(a) **Superplastic forming** of aluminium alloys, titanium alloys or **superalloys**:

- (1) Surface preparation;
- (2) Strain rate;
- (3) Temperature;
- (4) Pressure;

(b) **Diffusion bonding** of **superalloys** or titanium alloys:

- (1) Surface preparation;
- (2) Temperature;
- (3) Pressure;

(c) **Direct-acting hydraulic pressing** of aluminium alloys or titanium alloys:

- (1) Pressure;
- (2) Cycle time;

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- (d) **Hot isostatic densification** of titanium alloys, aluminium alloys or **superalloys**:
 - (1) Temperature;
 - (2) Pressure;
 - (3) Cycle time;
- (c) **Technology** for the **development** or **production** of hydraulic stretch-forming machines and dies therefor, for the manufacture of airframe structures;
- (d) **Technology** for:
 - The application of inorganic overlay coatings or inorganic surface modification coatings, specified in column 3 of the following Table;
 - To non-electronic substrates, specified in column 2 of the following Table; By processes specified in column 1 of the following Table and defined in the Note.

TABLE—

DEPOSITION TECHNIQUES

<i>1</i>	<i>2</i>	<i>3</i>
<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
(A) Chemical Vapour Deposition (CVD)	Superalloys	Aluminides for internal passages
	Ceramics and low-expansion glasses(14)	Silicides Carbides Dielectric layers (15)
	Carbon-carbon, ceramic and metal matrix composites	Silicides Carbides Refractory metals Mixtures thereof (4) Dielectric layers (15) Aluminides Alloyed aluminides (2)
	Cemented tungsten carbide (16), silicon carbide	Carbides Tungsten Mixtures thereof (4) Dielectric layers (15)
	Molybdenum and molybdenum alloys	Dielectric layers (15)

a (The numbers in parenthesis refer to the Notes following this Table.)

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<i>1</i>	<i>2</i>	<i>3</i>
<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
	Beryllium and beryllium alloys	Dielectric layers (15)
	Sensor window materials (9)	Dielectric layers (15)
(B) Thermal-Evaporation Physical Vapour Deposition (TE-PVD)		
(1)	(1) Physical Vapour Deposition (PVD): Electron-Beam (EB-PVD)	
	Superalloys	Alloyed silicides
		Alloyed aluminides (2)
		MCrA1X (5)
		Modified zirconia (12)
		Silicides
		Aluminides
		Mixtures thereof (4)
	Ceramics and low-expansion glasses (14)	Dielectric layers (15)
	Corrosion resistant steel (7)	MCrA1X (5)
		Modified zirconia (12)
		Mixtures thereof (4)
	Carbon-carbon, ceramic and metal matrix composites	Silicides
		Carbides
		Refractory metals
		Mixtures thereof (4)
		Dielectric layers (15)
	Cemented tungsten carbide (16), silicon carbide	Carbides
		Tungsten
		Mixtures thereof (4)
		Dielectric layers (15)
	Molybdenum and molybdenum alloys	Dielectric layers (15)
	Beryllium and beryllium alloys	Dielectric layers (15)

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<i>1</i>	<i>2</i>	<i>3</i>
<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
		Borides
	Sensor window materials (9)	Dielectric layers (15)
	Titanium alloys (13)	Borides
		Nitrides
(B.2)	(B.2) Ion assisted heating Vapour Deposition (Ion Plating)	Ceramics and low-expansion glasses (14)
		Dielectric layers (15)
		Carbon-carbon, ceramic and metal matrix composites
		Dielectric layers (15)
		Cemented tungsten carbide (16), silicon carbide
		Dielectric layers (15)
		Molybdenum and molybdenum alloys
		Dielectric layers (15)
		Beryllium and beryllium alloys
		Dielectric layers (15)
		Sensor window materials (9)
		Dielectric layers (15)
(B.3)	(B.3) Physical Vapour Deposition: laser evaporation	Ceramics and low-expansion glasses (14)
		Silicides
		Dielectric layers (15)
		Carbon-carbon, ceramic and metal matrix composites
		Dielectric layers (15)
		Cemented tungsten carbide (16), silicon carbide
		Dielectric layers (15)
		Molybdenum and molybdenum alloys
		Dielectric layers (15)
		Beryllium and beryllium alloys
		Dielectric layers (15)
		Sensor window materials (9)
		Dielectric layers (15)
		Diamond-like carbon
(B.4)	(B.4) Physical Vapour Deposition: cathodic discharge	Superalloys
		Alloyed silicides

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<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
		Alloyed aluminides (2) MCrAlX (5)
	Polymers (11) and organic matrix composites	Borides Carbides Nitrides
(C) (C) Pack cementation (see A above for out-of-pack cementation) (10)	Carbon-carbon, ceramic and metal matrix composites	Silicides Carbides Mixtures thereof (4)
	Titanium alloys (13)	Silicides Aluminides Alloyed aluminides (2)
	Refractory metals and alloys (8)	Silicides Oxides
D. Plasma spraying	Superalloys	MCrAlX (5) Modified zirconia (12) Mixtures thereof (4) Abradable Nickel-Graphite Abradable Ni-Cr-Al-Bentonite Abradable Al-Si-Polyester Alloyed aluminides (2)
	Aluminium alloys (6)	MCrAlX (5) Modified zirconia (12) Silicides Mixtures thereof (4)
	Refractory metals and alloys (8)	Aluminides Silicides Carbides

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<i>1</i>	<i>2</i>	<i>3</i>
<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
	Corrosion resistant steel (7)	Modified zirconia (12) Mixtures thereof (4)
	Titanium alloys (13)	Carbides Aluminides Silicides Alloyed aluminides (2) Abradable Nickel-Graphite Abradable Ni-Cr-Al-Bentonite Abradable Al-Si-Polyester
E. Slurry Deposition	Refractory metals and alloys (8)	Fused silicides Fused aluminides except for resistance heating elements
	Carbon-carbon, ceramic and metal matrix composites	Silicides Carbides Mixtures thereof (4)
F. Sputter Deposition	Superalloys	Alloyed silicides Alloyed aluminides (2) Noble metal modified aluminides (3) MCrAlX (5) Modified zirconia (12) Platinum Mixtures thereof (4)
	Ceramics and low-expansion glasses (14)	Silicides Platinum Mixtures thereof (4) Dielectric layers (15)
	Titanium alloys (13)	Borides Nitrides Oxides

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<i>1</i>	<i>2</i>	<i>3</i>
<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
		Silicides
		Aluminides
		Alloyed aluminides (2)
		Carbides
	Carbon-carbon, ceramic and metal matrix composites	Silicides
		Carbides
		Refractory metals
		Mixtures thereof (4)
		Dielectric layers (15)
	Cemented tungsten carbide (16), silicon carbide	Carbides
		Tungsten
		Mixtures thereof (4)
		Dielectric layers (15)
	Molybdenum and molybdenum alloys	Dielectric layers (15)
Beryllium and beryllium alloys	Borides	
Sensor window materials (9)	Dielectric layers (15)	
		Dielectric layers (15)
	Refractory metals and alloys (8)	Aluminides
		Silicides
		Oxides
		Carbides
G. Ion Implantation	High temperature bearing steels	Additions of chromium, tantalum or niobium (columbium)
	Titanium alloys (13)	Borides
		Nitrides
	Beryllium and beryllium alloys	Borides
	Cemented tungsten carbide(16)	Carbides

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<i>1</i>	<i>2</i>	<i>3</i>
<i>Coating Process (1)</i>	<i>Substrate</i>	<i>Resultant Coating</i>
		Nitrides

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