

SCHEDULE 1

PROHIBITED GOODS–MISCELLANEOUS CONTENTS

PART II

GROUP 3C

Electrical and Power-Generating Equipment

IL1205

Electro-chemical, semiconductor and radioactive devices for the direct conversion of chemical, solar or nuclear energy to electrical energy, the following–

(a) Electro-chemical devices, the following: and specially designed components therefor–

(1) fuel cells operating at temperatures of 523 K (250°C) or less, including regenerative cells, ie cells for generating electric power, to which all the consumable components are supplied from outside the cell C

Note: the temperature of 523 K or less refers to the fuel cell and not to the fuel conditioning equipment, which may be either an ancillary or an integral part of the fuel cell battery and which may operate at over 523 K.

(2) primary cells (non-rechargeable) and batteries, having any of the following characteristics–

(i) reserve (water, electrolyte or thermally activated) batteries possessing a means of

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activation and having a rated unactivated storage life of three years or more at an ambient temperature of 297 K (24°C)

(ii) utilizing lithium or calcium (including alloys in which lithium or calcium are constituents) as electrodes and having an energy density at a discharge current equal to $C/24$ hours (C being the nominal capacity at 297 K (24°C) in ampere-hours) of more than 300 watt-hours per kilogramme at 297 K (24°C) and more than 100 watt-hours per kilogramme at 244 K (-29°) C

Note: Energy density is obtained by multiplying the average power in watts (average voltage in volts times average current in amperes) by the duration of the discharge in hours to 80% of the open-circuit voltage and dividing by the total mass of the cell (or battery) in kilogrammes;

(iii) using an air electrode together with either lithium or aluminium counter-electrodes and having a power output of 5 kilowatts or more or an energy output of 5 kilowatt-hours or more C

(3) secondary (rechargeable) cells and batteries having either of the following characteristics after more than 20 charge/discharge cycles at a

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discharge current equal to $C/5$ hours (C being the nominal capacity in ampere-hours)–

(i) utilizing nickel and hydrogen as the active constituents and having an energy density of 55 watt hours per kilogramme or more at 297 K (24°C) C

(ii) utilizing lithium or sodium as electrodes or reactants and having an energy density of 55 watt-hours per kilogramme or more at the rated operating temperature C

Note: Energy density is obtained by multiplying the average power in watts (average voltage in volts times average current in amperes) by the duration of the discharge in hours to 75% of the open-circuit voltage and divided by the total mass of the cell (or battery) in kilogrammes;

(4) molten salt electrolyte cells and batteries which normally operate at temperatures of 773 K (500°C) or below C

(b) Photo-voltaic cells, the following: and specially designed components therefor–

(1) cells with a power output of 140 W or more per sq m under 1 kW per sq m tungsten 2,800 K (2,527°C) illumination C

(2) all gallium arsenide photo-voltaic cells including those having a C

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power output of less than 40 W per sq m measured using the technique in sub-head (1) to this head

(3) cells with a power output of 4.5 kW or more per sq m under 100 kW per sq m silicon carbide at 1,750 K(1,477°C) illumination C

(4) electromagnetic cells (including laser) and ionized particle radiation resistant cells C

(c) Power sources based on radio-active materials systems other than nuclear reactors C

except—

(i) those having an output power of less than 0.5 W and a total weight (force) of more than 890 N (90.7 kg);

(ii) those specially designed and developed for medical use within the human body.

There are excluded from this entry cells and power source devices, the following: and specially designed components therefor—

(a) fuel cells specified in sub-head (a)(1) above, provided they are not space qualified, with a maximum output power more than 10 kilowatts and which use gaseous pure hydrogen and oxygen/air reactants, alkaline electrolyte and a catalyst supported by carbon either pressed on a metal mesh electrode or attached to a conducting porous plastic;

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(b) lithium primary (non-rechargeable) cells or batteries specified in sub-head (a)(2)(ii) which:

(1) are specially designed for consumer applications; or

(2) are specially designed for civil applications and have a nominal capacity less than or equal to 35 ampere-hours and discharge current of less than $C/10$ hours (C as defined for the purpose of sub-head (a)(2)(ii)).

(c) lithium secondary (rechargeable) cells and batteries specified in sub-head (a)(3)(ii) above which:

(1) are specially designed for consumer applications;

(2) have a nominal capacity less than or equal to 0.5 ampere-hour and an energy density of less than 40 watt-hours per kilogramme at 273 K (0°C) and a discharge current of less than $C/10$ hours (C as defined for the purpose of sub-head (a)(3));

(d) sodium secondary (rechargeable) cells and batteries specified in sub-head (a)(3)(ii) above which are specially designed for consumer or civil industrial applications and which are not space qualified.

In this entry “space qualified” refers to products which are stated by the manufacturer as designed and tested to meet the special electrical, mechanical

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or environmental requirements
for use in rockets, satellites or
high-altitude flight systems
operating at altitudes of 100
km or more.
