Examples of control items
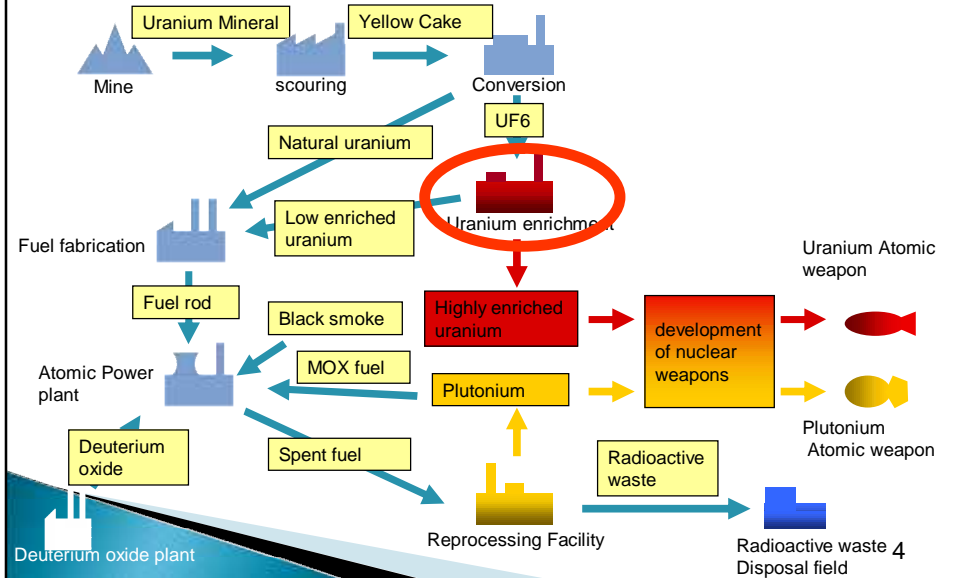
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Trade and Economic Cooperation Bureau,
Ministry of Economy, Trade and Industry (METI)

Contents

- in the case of Nuclear Weapons

- in the case of Computers

- in the case of Cryptography

Examples of control items

- in the case of Nuclear Weapons

3

Concentration Process is important
for development of nuclear weapons

Uranium Mineral

Yellow Cake

Mine

scouring

Conversion

UF6

Natural uranium

Uranium enrichment

Fuel fabrication

Low enriched uranium

Uranium Atomic weapon

Fuel rod

Black smoke

Highly enriched uranium

development of nuclear weapons

Atomic Power plant

MOX fuel

Plutonium

Plutonium Atomic weapon

Deuterium oxide

Spent fuel

Radioactive waste

Deuterium oxide plant

Reprocessing Facility

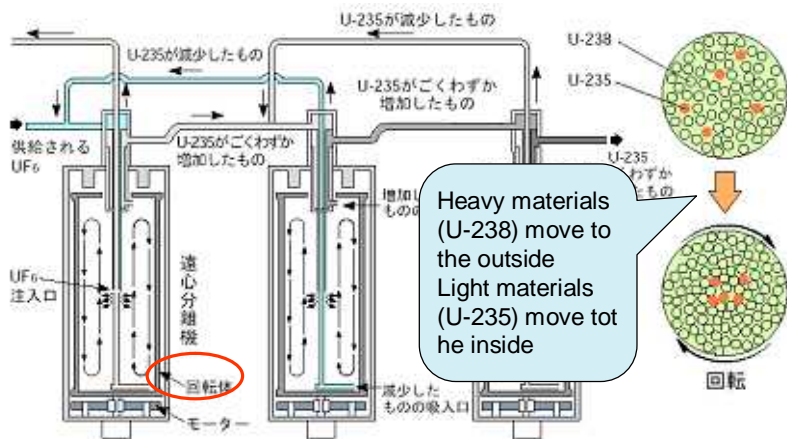Radioactive waste Disposal field

4

Centrifugal machine used for Concentration of Uranium

Concentration of Uranium is incresed by using many Centrifugal machines.

5

Uranium concentrated by Centrifugal force

Heavy materials (U-238) move to the outside
Light materials (U-235) move tot he inside

6

Machine tool

The Machine Tool is a machine which produces machine parts. Computer Numerical Control (CNC) control the movement and speed of the cutting tool. Therefore it can process complex shapes.

Military use — Used for processing parts for Centrifugal machines

Civilian use — Used for processing automobile parts and general machine parts, which must be highly control

It is controlled in NSG and WA.

7

1.B.2. Machine tools, as follows, and any combination thereof, for removing or cutting metals, ceramics, or composites, which, according to the manufacturer's technical specifications, can be equipped with electronic devices for simultaneous "contouring control" in two or more axes:
…
a. Machine tools for turning, that have "positioning accuracies" with all compensations available better (less) than 6 μ m according to ISO 230/2 (1988) along any linear axis (overall
positioning) for machines capable of machining diameters greater than 35 mm;
…
b. Machine tools for milling, having any of the following characteristics:
1. "Positioning accuracies" with all compensations available better (less) than 6 μ m according to ISO 230/2 (1988) along any linear axis (overall positioning);
2. Two or more contouring rotary axes; or
3. Five or more axes, which can be coordinated simultaneously for "contouring control
…

Extraction from NSG guideline (part2)
http://www.nuclearsuppliersgroup.org/Leng/PDF/infcirc254r7p2-060320.pdf

8

Deregulation related Machine tool

Need the End-user Certification for items related WMDs

In case we re-sell, re-transfer, or re-export the goods and their replicas, or re-transfer the technology and software owing to unavoidable circumstances, end-user shall obtain a prior written consent from exporter and METI.

Need password for re-transfer

Equipment to detect re-transfer

Deregulation of the certification

9

Carbon Fiber

The characteristic of Carbon Fiber is abrasion resistance, heat resisting properties, acid resistance, electrical conduction property. And it also very light.

Military use   Constructional material for rotors of Centrifugal machines

Civilian use   golf club shafts, tennis rackets

It is controlled in NSG and WA.

Resaturated pyrolised (i.e. carbon-carbon) components are controlled in MTCR.

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2.C.7. "Fibrous or filamentary materials", and prepregs, as follows:
      a. Carbon or aramid "fibrous or filamentary materials" having either of the following characteristics:

      1. A ´specific modulus´ of 12.7 x 106 m or greater; or
      2. A ´specific tensile strength´ of 23.5 x 104 m or greater;

<u>Note</u>: Item 2.C.7.a. does not control aramid "fibrous or filamentary materials" having 0.25% or more by weight of an ester based fiber surface modifier.

Extraction from NSG guideline (part2)
http://www.nuclearsuppliersgroup.org/Leng/PDF/infcirc254r7p2-060320.pdf

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Regulated Carbon Fiber in NSG and WA
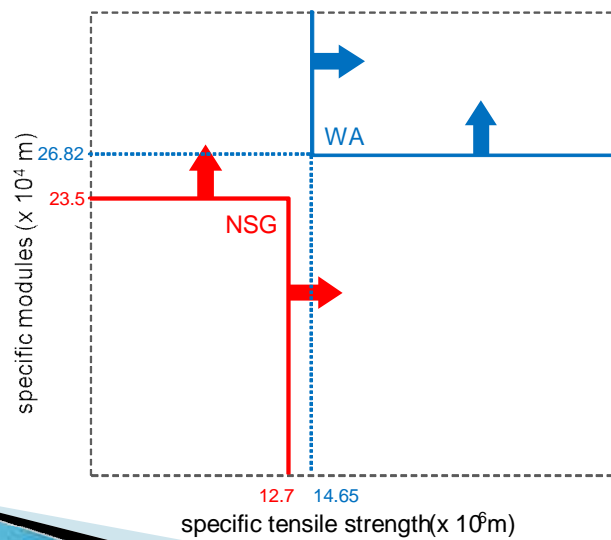
Examples of Control Items

- in the case of Computers

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Computers

Is your PC controlled?

4.A.1.   Electronic computers and related equipment, having any of the following and "electronic assemblies" and specially designed components therefore:
   a.   Specially designed to have any of the following:
    1.   Rated for operation at an ambient temperature below 228 K (-45° C) or above 358 K (85° C); <u>or</u>
…
    2.   Radiation hardened to exceed any of the following specificat[ions]
    a. Total Dose   5 x 103 Gy (Si);
    b. Dose Rate Upset   5 x 106 Gy (Si)/s; <u>or</u>
    c. Single Event Upset   1 x 10-7 Error/bit/day.
 …
4.A.3.   "Digital computers", "electronic assemblies", a[nd]
therefore, as follows and specially designed component[s]
…
4.A.3.b.   "Digital computers" having an 'Adjusted Peak Performance' ('APP') exceeding 1.5 Weighted TeraFLOPS (WT);

> Under severe conditions

> High performance

Extraction from WA list (Category 4)
http://www.wassenaar.org/controllists/index.html

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Examples of Control Items

- in the case of Cryptography

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Cryptography

Cryptography is to transform words or symbols into other words or symbols according to a defined procedure.
Cryptography are controlled because of the use for concealment of Military information.
It is also used for Civilian use, which are extended rapidly.
It is hard to define uses of Cryptography.
<Military use>
  Military Information
<Civilian use>
  PC, game
  Credit card : name, price of goods or service
  Smart card (electronic wallet, SIM card)
          : the balance, name, telephone number

Cryptography is controlled by 'Negative List System' which means that all subjects to have defined specs without some defined exceptions are controlled.

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Cryptography

5.A. 2. "Information security" systems, equipment and componen[t] **Controlled specs**
5.A.2.a.1.a. A "symmetric algorithm" employing a key leng[th]
       56 bits;
or
       b. An "asymmetric algorithm" where the security of the algorithm is
based on any of the following:
          1.Factorisation of integers in excess of 512 bits (e.g., RSA);
          2. Computation of discrete logarithms in a multiplicative group
       of a finite field of size greater than 512   **Exception use which means only civilian use**
       over Z/pZ); or

Note   *5.A.2. does **not apply** to any of the following:*
a.Smart cards and smart card 'readers/writers' as follows:
       1.A smart card or an electronically readable personal
document   (e.g.,   token coin, e-passport) that meets any of the
following:
b. Having all of the following:
       1.It is specially designed and limited to allow protection of 'personal
data' stored within;

Extraction from WA list (Category 5 - Part 2) 17
http://www.wassenaar.org/controllists/index.html

Additional Exceptions

If you have an overseas business trip and you bring a
PC with controlled cryptography, …

Part 2 - "INFORMATION SECURITY"   **For Personal use**
 ...
Note 2   *Category 5 – Part 2 does **not apply** to products when accompanying
their user for the user's personal use.*

Note 3   *Cryptography Note*   **For Goods on the market**

*5.A.2. and 5.D.2. **do not apply** to items that meet all of the following:*
*a.   Generally available to the public by being sold, without restriction, from
stock at retail selling points by means of any of the following:*
1.   Over-the-counter transactions;
2.   Mail order transactions;
3.   Electronic transactions; or
4.   Telephone call transactions;
b.   The cryptographic functionality cannot easily be changed by the user;
 ...

Extraction from WA list (Category 5 - Part 2) 18
http://www.wassenaar.org/controllists/index.html

Thank you
for your attention.

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