

GOVERNMENT OF INDIA

MINISTRY OF COMMERCE

Notification No. 5 (RE-2000)/1997-2002

New Delhi, Dated the 31st March, 2000.

In exercise of the powers conferred by Section 5 of the Foreign Trade (Development and Regulation) Act, 1992 (No. 22 of 1992) read with paragraph 1.3 and 4.1 of the Export and Import Policy, 1997-2002, the Central Government hereby makes the following amendments in the "ITC (HS) Classifications of Export and Import Items 1997-2002" (incorporating amendment made upto 31st August, 1998) as amended from time to time, namely :-

2. Codes 0003, 0004 and 005 along with their item description, policy and nature of restriction in Table A Schedule 2- Export Policy in ITC(HS) Classifications of Export and Import Items, 1997-2002 shall stand deleted.

3. The item description, policy and nature of restrictions as indicated against Code 0012 in table A Schedule 2- Export Policy shall be amended to read as under :-

Code No.	ITEM	POLICY	NATURE OF RESTRICTION
0012	Special Chemicals, Organisms, Materials , Equipments and Technologies as specified in Schedule 2 Appendix 3 of this book .	Prohibited/Restricted/ Free	Exports governed as per the conditions indicated in Appendix-3

4. The item description against Code 2902 in Table B of Schdule 2 shall be amended to read as under:-

2902	Chemicals included in Annexure-A and B to the Montreal Protocol on substances that deplete the Ozone layer as specified in Schedule 2 Appendix 5 of this book.	Restricted	Exports permitted under licence subject to the condition that the export is made to a country which is a party to the 'Montreal Protocol on substances that Deplete the Ozone Layer'. However, export to countries which are not parties to the Montreal Protocol is prohibited.
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5. The item description against S. No. 37 Appendix –1 and the condition against the same and the note thereunder shall be amended to read as under:

37	Chemicals included in Schedule 3 to the Chemical Weapon Convention of the United Nations as specified in Schedule 2 Appendix 3 of the book titled ITC(HS) Classifications of Export and Import Items when exported to state parties to the Chemical Weapons Conventions.	. Export allowed subject to the condition that exporter shall notify the National Authority, Chemical Weapons Convention, Cabinet Secretariat , Ministry of External Affair (D&ISA), Department of Chemicals and Petrochemical and the Directorate General of Foreign Trade of such exports in the prescribed format (Appendix 18B, as reproduced in the Hand Book of Procedures, 1997-2002) alongwith the End Use Certificate within 30 days of the actual exports.
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Export of Schedule 3 chemicals as specified above, to states not party to the Chemical Weapons Convention shall

continue to be restricted against export licences.

6. The existing Appendixes 3, 5, 5A, 6 and 8 in Schedule 2 shall stand deleted.

7. The Appendix 3 as contained in Annexure to this Notification shall be inserted as Appendix 3 in Schedule 2 .

8. The existing Appendix 7 in Schedule 2 shall be renumbered as Appendix 5.

This issues in Public Interest.

(N. L. LAKHANPAL)

DIRECTOR GENERAL OF FOREIGN TRADE

EX-OFFICIO ADDITIONAL SECRETARY TO THE GOVERNMENT OF INDIA

(AJAY SAHAI)

JT. DIRECTOR GENERAL OF FOREIGN TRADE

FOR DIRECTOR GENERAL OF FOREIGN TRADE

ANNEXURE TO NOTIFICATION NO. 5 (RE-2000)/1997-2002 DATED 31.3.2000

APPENDIX-3

Export of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) listed below shall be permitted only against an export license issued in this behalf unless it is prohibited or permitted without a licence subject to fulfillment of conditions, if any, as indicated under / against any specific category or item.

Note 1: Export or attempt to export in violation of any of the conditions of license to export shall, *inter alia*, and without prejudice to prosecution under any other Act for the time being in force, invite criminal prosecution under the Customs Act, 1962.

Note 2: Export of items listed in this schedule, (other than those listed under Categories 0, 1 and 2) solely for the purposes of display/exhibition abroad are subject to condition of re-import within a period not exceeding six months from the date of exports. Exporters are entitled to apply for a standard SCOMET export license for such items exhibited abroad if offered for sale during the exhibition abroad. Such sale shall not take place without a valid SCOMET license.

Exhibition licenses will not require any end-use/end-user certifications.

(No exhibition licences shall be issued for items under categories 0, 1 and 2)

Note 3: The export of items in Category 2 of this list may also be controlled by other applicable guidelines issued from time-to-time. Exporters of items in this category are advised to seek guidance from the DGFT.

Note 4: Destination License : Exporters are entitled to apply for a 'destination license' for countries and/or group of countries for export to which only re-export conditionalities need be imposed. Exporters may also request that only such conditions need be imposed as are the subject of government-to-government instruments of accord over export of some or all SCOMET items.

Category 0: Nuclear materials, facilities and related equipment

Note: The licensing authority for items in this category is the Department of Atomic Energy. Export of these items is regulated under Sections 14 & 16 of the Atomic Energy Act, 1962 and rules framed, and notifications/orders issued thereunder from time-to-time by the Department of Atomic Energy. An application for licenses to export prescribed equipment or/and prescribed substances shall be made in writing to the Joint Secretary, Department of Atomic Energy, Anushakti Bhavan, Chatrapathi Shivaji Marg, Mumbai - 400 001.

0A Prescribed substances

0A001 Uranium, its compounds and minerals/ores/concentrates containing uranium including tailings containing uranium.

0A002 Thorium, its compounds and minerals/concentrates containing thorium including monazite.

0A003 Zirconium, its alloys and compounds and minerals/concentrates including zircon.

0A004 Beryllium, its compounds and its minerals/concentrates including beryl but excluding beryllium windows used for medical x-ray machines and gamma ray machines.

0A005 Lithium, its compounds and its minerals/concentrates including lepidolite.

0A006 Deuterium and its compounds (including Heavy Water)

0A007 Plutonium and its compounds.

0A008 Neptunium and its compounds.

0A009 Columbite and Tantalite.

0A010 Titanium ores and concentrates (ilmenite, rutile, and leucoxene)

0A011 Nuclear grade graphite

0A012 Tritium and its compounds.

0B Prescribed equipment

0B001 Nuclear reactors; associated equipment, components and systems specially designed or adapted or used or intended to be used in such reactors.

0B002 Plants for processing of Prescribed Substances, associated equipment, components and systems specially designed or adapted or used or intended to be used in such plants.

0B003 Plants for reprocessing of irradiated nuclear fuel and plants for treatment of radioactive wastes from nuclear reactors or from plants for processing Prescribed Substances or from nuclear reprocessing plants, associated equipment, components and systems specially designed or adapted or used or intended to be used in such plants.

0B004 Plants or systems for production, handling, storage and transportation of radioisotopes in quantities exceeding 100 Curies (3.7×10^{12} (ten-raised-to-the-power-twelve) Becquerel).

0B005 Equipment specially used for handling, storage and transportation of:

- a) radioactive wastes from nuclear reactors or from plants for processing Prescribed Substances or from nuclear reprocessing plants;
- b) irradiated nuclear fuel;
- c) plutonium;
- d) plutonium containing fuel.

0B006 All systems, associated equipment and components for use in isotope enrichment.

0B007 All systems, associated equipment and components for the manufacture of nuclear fuel.

0B008 Neutron generators including neutron chain reacting assemblies and fusion assemblies of all kinds for producing fissile materials.

0B009 High power lasers giving an output in excess of 10 joules in a pulse duration less than 100 pico seconds, or an oscillator-amplifier laser chain capable of delivering greater than 500 joules in 1 nano second.

Category 1: Toxic chemical agents and other chemicals:

1A Export of the following chemicals is prohibited:

(This corresponds to Schedule 1 to the Chemical Weapons Convention)

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Note: Where reference is made below to groups of dialkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations and alkyl groups listed in parentheses are considered prohibited unless explicitly exempted.

(1) O-Alky(< C₁₀ , incl. Cycloalkyl) alky1

(Me, Et,n-Pr or I-Pr) phosphonofluoridates

e.g. Sarin: O-Isopropyl methylphosphonofluoridate

Soman: O-Pinacolyl methylphosphonofluoridate

(2) O-Alkyl(, incl. Cycloalkyl) N,N-dialkyl (Me Et,n-Pr or I-Pr) phosphoramidocyanidates

e.g. Tabun: O-Ethyl N,N,-dimethyl phosphoramidocyanidates

(3) O Alkyl(H or, incl. Cycloalkyl)S-2-Dialkyl (Me, Et, n-Pr or I-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr)phosphonothiolates and corresponding alkylated or protonated salts

e.g. VX: O-Ethyl S-2-disopropylaminoethyl methyl phosphonothiolate

(4) Sulfur mustards:

2-Chloroethylchloromethylsulfide

Mustard gas: Bis(2-chloroethyl)sulfide

Bis(2-chloroethylthio) methane

Sesquimustard:1,2-Bis(2-chloroethylthio) ethane

1,3-Bis(2-chloroethylthio)-n-propane

1,4-Bis(2-chloroethylthio)-n-butane

1,5-Bis(2-chloroethylthio)-n-Pentane

Bis(2-Chloroethylthiomethyl)ether

O-Mustard: Bis(2-Chloroethylthiomethyl)ether

(5) Lewisites:

Lewisite 1: 2-Chlorovinylldichloroarsine

Lewisite 2: Bis (2-Chlorovinyl) chloroarsine

Lewisite 3: Tris (2-Chlorovinyl) arsine

(6) Nitrogen mustards:

HN1: Bis(2-chloroethyl) ethylamine

HN2: Bis(2-chloroethyl) Chloroarsine

HN3: Tris(2-chloroethyl) amine

(7) Saxitoxin

(8) Ricin

(9) Alkyl (Me, Et, n-Pr or I-Pr) phosphonyldifluorides

e.g. DF: Methyl phosphonyldifluoride

(10) O-Alkyl (H or , incl. Cycloalkyl) O-2 dialkyl (Me, Et, n-Pr or I-Pr)-aminoethylalkyl (Me, Et N-Pr or I-Pr)

Phosphonites and corresponding alkylated or protonated salts

e.g. QL: o-Ethyl O-2-diisopropylaminoethyl methyl phosphonite

(11) Chlorosarin: O-Isopropyl methylphosphonochloridate

(12) Chlorosoman: O-Pinacolyl methylphosphonochloridate

1B Export of chemicals listed in 1B below is permitted only to States party to the Chemical Weapons Convention:

(This corresponds to Schedule 2 to the Chemical Weapons Convention)

{Note to exporter: A list of States Parties can be obtained from the Disarmament & International Security Affairs Division of the Ministry of External Affairs (Room No. 40-G, South Block, New Delhi) or at the official website of the Organisation for the Prohibition of Chemical Weapons at www.opcw.org}

Note:Where reference is made below to groups of dialkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations and alkyl groups listed in parentheses are considered prohibited unless explicitly exempted.

(1) Amiton 0,0-Diethyl S-[2-(diethylamino) ethyl]] phosphorothiolate and corresponding alkylated or protonated salts

(2) PFIB: 1,1,3,3,3,-Pentafluoro-2-(trifluoromethyl)1-propene

(3) BZ: 3-Quinuclidinyl benzilate (*)

(4) Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms,

e.g. Methylphosphonyl dichloride

Dimethyle ethylphosphonate

Exemption:- Fonofos: O-Ethyl S-phenyl ethylphosphonothiolothionate

(5) N, N-Dialkyl (ME, Et, n-Pr or i-Pr) phosphoramidic dihalides

(6) Dialkyl (Me, Et, n-Pr or i-Pr) N, N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates

(7) Arsenic trichloride

(8) 2,2-Diphenyl-2 hydroxyacetic acid

(9) Quinuclidine-3-ol

(10) N,H-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2 -chlorides and corresponding protonated salts

(11) N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2 -ols and corresponding protonated salts

Exemptions: N,N-Dimethylaminoethanol

and corresponding protonated salts

N,N-Diethylaminoethanol

and corresponding protonated salts

(12) N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts

(13) Thiodiglycol: Bis(2-hydroxyethyl) sulphide

(14) Pinacolyl alcohol: 3,3-Dimethylbutane-2-ol

1C Export of Chemicals as specified below is allowed subject to the condition that when exported to states parties to the Chemical Weapons Convention the exporter shall notify the same along with a End-Use certificate within 30 days of actual export. Export of chemicals as specified below to states not party to the Chemical Weapons Convention shall continue to be restricted and will be allowed only against an export license.

(This corresponds to Schedule 3 to the Chemical weapons Convention)

(1) Phosgene: carbonyl dichloride

(2) Cyanogen chloride

(3) Hydrogen cyanide

(4) Chloropicrin: Trichloronitromethane

(5) Phosphorus oxychloride

(6) Phosphorus trichloride

(7) Phosphorus pentachloride

(8) Trimethyl phosphite

(9) Triethyl phosphite

(10) Dimethyl phosphite

(11) Diethyl phosphite

(12) Sulfur monochloride

- (13) Sulfur dichloride
- (14) Thionyl chloride
- (15) Ethyldiethanolamine
- (16) Methyldiethanolamine
- (17) Triethanolamine

Category 2: Micro-organisms, toxins

2A Bacteria, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:

1. Bacillus anthracis
2. Bordetella bronchoseptica
3. Brucella abortus,
4. Brucella melitensis
5. Brucella suis
6. Chlamydia psittaci
7. Clostridium botulinum
8. Clostridium perfringes

9. *Corynebacterium diphtheriae*
10. *Francisella tularensis*
11. *Klebsiella pneumoniae*
12. *Legionella pneumophila*
13. *Leptospira interrogans* - all serotypes reported in India
14. *Mycobacterium bovis*
15. *Mycobacterium tuberculosis*
16. *Mycoplasma mycoides* - var *mycoides*
17. *Mycoplasma mycoides* - var *Capri*
18. *Neisseria meningitidis*
19. *Pasteurella multocida* type B
20. *Pseudomonas mallei*
21. *Pseudomonas pseudomallei*
22. *Salmonella paratyphi*
23. *Shigella dysenteriae*
24. *Staphylococcus aureus*

25. *Streptococcus pneumoniae*
26. *Vibrio cholerae* elter
27. *Vibrio Cholerae* 0139
28. *Yersinia pestis*

2B Fungi, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:

1. *Blastomyces dermatitidis*
2. *Coccidioides immitis*
3. *Histoplasma capulatum*
4. *Nocardia asteroides*
5. *Paracoccidioides braziliensis*

2C Parasites, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:

1. *Entamoeba histolytica*
2. *Babesia microti*
3. *Babesia divergens*

4. *Blotidium coli*
5. *Cryptosporidium* spp.
6. *Leishmania* species
7. *Naegleria australiensis*
8. *Naegleria fowleri*
9. *Plasmodium falciparum*
10. *Pneumocystis carinii*
11. *Schistosoma mansoni*
12. *Schistosoma japonicum*
13. *Schistosoma hemotobium*
14. *Toxoplasma gondii*
15. *Trichinella spiralis*
16. *Trypanosoma bruiei*

2D Viruses, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:

1. African Horse Sickness virus
2. African Swine Fever virus

3. Avian influenza virus
4. Blue tongue virus
5. Camel pox virus
6. Chikungunya virus
7. Crimean-Congo hemorrhagic fever virus
8. Dengue virus
9. Eastern equine encephalitis virus
10. Ebola fever virus
11. Encephalomyocarditis virus (EMC)
12. Foot and Mouth Disease virus (all serotypes and subtypes)
13. Guanirito virus
14. Goatpox virus
15. Hantaan virus
16. Herpes virus simiae (monkey B virus)
17. Herpes ateles, Herpes saimiri
18. HIV- 1 & HIV-2 and other strains of SIV

19. Hog cholera virus
20. Human T-cell Leukemia virus
21. Junin virus
22. Japanese encephalitis virus
23. Kyasanur Forest Disease virus and Central European encephalitis viruses.
24. Korean hemorrhagic fever virus
25. Lymphocytic choriomeningitis virus (LCM)
26. Lassa virus
27. Marburg virus
28. Murrey valley encephalitis virus
29. Marchupo virus
30. Mason-pfizer monkey virus
31. Monkey pox virus
32. Newcastle disease virus
33. Omsk hemorrhagic fever virus
34. Peste des petits ruminant virus

35. Porcine enterovirus type I
36. Powassan virus
37. Rabies virus -all strains
38. Respiratory syncytial virus
39. Rift Valley Fever virus
40. Rinderpest virus
41. Sabia virus
42. Sheep pox (field strain)
43. Sin Nombre virus
44. Smallpox virus
45. St.Louis encephalitis virus
46. Swine Fever virus
47. Tick-borne encephalitis virus (Russian Spring Summer Encephalitis virus)
48. Teschen disease virus (Porcine entero virus type 1)
49. Variola virus
50. Venezuelan encephalitis virus

51. Vesicular stomatitis virus
52. Western encephalitis virus
53. Yellow fever virus, 17 D vaccine strain

2E Rickettsials, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material

which has been deliberately inoculated or contaminated with such cultures for the following:

1. Coxiella burnetti
2. Rickettsiae rickettsii
3. Rickettsia quintana
4. Rickettsia prowazebi

2F Toxins

1. Abrins
2. Aflatoxins
3. Anatoxins
4. Botulinum toxin (s) (clostridium botulinum)
5. Bungarotoxins
6. Clostridium perfringens toxins
7. Corynebacterium diphtheriae toxins
8. Cyanginosins (Microcystins) (Microcystic aeuginosa)
9. Enterotoxin (Staphylococcus aureus)

10. Neurotoxin (*Shigella dysenteriae*)
11. Ricins
12. Shigatoxins
13. Saxitoxins
14. Trichothecene mycotoxins
15. Tetanus toxin (*Clostridium tetani*)
16. Tetrodotoxin (*Spherooides rufripes*)
17. Verrucologen (*M. verrucadia*)

2G Plant pathogens

1. *Bemisia tabaci*
2. *Colletotrichum coffeanum* var. *virulans*
3. *Clavicep purpurea*
4. *Dothistroma pini* (*Scirrhia pini*)
5. *Erwinia amylovora*
6. *Frankliniella occidentalis*
7. *Microcyclus ulei*
8. *Peronospora hyoscyami* de Bary f.sp. *tabacina* (Adam) Skalický
9. *Phytophthora infestans*
10. *Puccinia graminis*
11. *Puccinia erianthi*
12. *Puccinia striiformis* (*Puccinia glumarum*)
13. *Pyricularia oryzae*
14. *Pseudomonas solanacearum*
15. *Peronospora hyscyami* de Bary
16. *Ralstonia solanacearum*
17. Sugar cane Fiji disease virus
18. *Sclerotinia sclerotiorum*
19. *Tilletia indica*

20. *Thrips palmi*
21. *Ustilago Maydis*
22. *Xanthomonas albilineans*
23. *Xanthomonas campestris* pv *citri*
24. *Xanthomonas campestris* pv *oryzae*

2H Genetically Modified Organisms

1. Genetically-modified micro-organisms or genetic elements that contain nucleic acid sequences associated with pathogenicity and are derived from organisms specified above in 2A, 2B, 2C, 2D, 2E and 2H.
2. Genetically-modified micro-organisms or genetic elements that contain nucleic acid sequences coding for any of the toxins specified above in 2F.

Category 3: Special Materials, Materials Processing Equipment, and related technologies

3A Special Materials

3A001 Magnesium of purity greater than 99.9%

3A002 Maraging steel except forms in which no linear dimension exceeds 75 mm.

3A003 Tungsten, molybdenum, and alloys of those metals in the form of uniform spherical or atomized particles of 500 micrometer diameter or less with a purity of 97% or higher.

3A004 Germanium

3A005 Gallium

3A006 Hafnium

3A007 Indium

3A008 Niobium

3A009 Titanium-Uranium alloys.

3A010 Articles made of materials (including waste & scrap) appearing at items **3A005** to **3A009** above.

3B Materials processing equipment and related technologies:

3B001 Remote manipulators that provide mechanical translation of human operator actions by electrical, hydraulic or mechanical means and operating arm and terminal fixture that can be used to provide remote actions.

3B002. Equipment, technical data and procedures for the production of structural composites for rocket systems including:-

(a) Carbon - carbon composites;

(b) Filament winding machines of which the Motion for positioning wrapping and winding fibres are coordinated and programmed in three or more axes; and coordinating and programming controls

- (c) Tape-laying machines of which the motions for positioning and laying tape and sheets are coordinated and programmed in two or more axes;
- (d) Multidirectional, multidimensional weaving and interlacing machines, including adapters and modification kits for weaving, interlacing or braiding fibres to fabricate composite structures except textile machinery which has not been modified for the above end;
- (e) Equipment designed or modified for production of fibrous or filamentary materials as follows: converting polymeric substances; vapor deposition on heated filament substrates; wet spinning of refractory ceramics.
- (f) Technical data (including processing conditions) and procedures for the regulation of temperature, pressure or atmosphere in autoclaves when used for the production of composites or partially processed composites.

3B003 Pyrolytic deposition and densification equipment:

(a) Technology for producing pyrolytically derived materials formed on a mould, mandrel or other substrate from precursor gases;

(b) Specially designed nozzles for the above process;

(c) Equipment and process controls and specially designated software therefor, specially designed for densification and pyrolysis of structural composite rocket nozzles and reentry vehicle nose tips.

3B004 Production technology or production equipment specially designed or modified for production, handling, mixing, curing, casting, pressing, machining or acceptance testing of the solid or liquid rocket propellants or rocket propellant constituents.

3B005 Sputter ion pumps

3B006 Refrigeration units and equipment capable of cooling hydrogen or helium to -250 degrees Celcius (23K) or lower.

3B007 Continuous nitrators;

3B008 Dehydration presses;

3B009 Screw extruders specially designed or modified for military explosive extrusion;

3B010 Cutting machines for the sizing of extruded propellant;

3B011 Sweetie barrels (tumblers) 1.85 m or more in diameter and having over 227 kg product capacity;

3B012 Continuous mixers for solid propellants;

3B013 Fluid energy mills for grinding or milling the ingredients military explosive;

3B014 Equipment to achieve both sphericity and uniform particle size in metal powders.

3C [Reserved]

3D Chemical and biomaterial manufacturing and handling equipment and facilities:

3D001 Reaction vessels, Reactors or Agitators, Storage tanks, Containers or Receivers, Heat Exchangers or Condensers, Distillation or Absorption Columns, Valves, multi-walled piping and pumps made from the following materials;

(i) Nickel or alloys with more than 40% nickel by weight

(ii) Alloys with more than 25% nickel and 20% chromium by weight

(iii) Fluoropolymers

(iv) Glass or glass lined (including vitrified or enamelled coating)

(v) Graphite

(vi) Tantalum or tantalum alloys

(vii) Titanium or titanium alloys

(viii) Zirconium or zirconium alloys

(ix) Ceramics (applies only to pumps)

(x) Ferrosilicon (applies only to pumps)

Note **3D001** does not control the following items:

(i) Open vessels fabricated from glass sheets (such as aquariums, water tanks etc.)

(ii) Glass-ware (whether or not metal-jacketed) or glass-lined reaction vessels or reactors, whether or not equipped with agitators, provided that the total internal (geometric) volume of each vessel or reactor is less than or equal to 100 litres (0.1 m³) or greater than 20,000 litres (20 m³). Laboratory glassware such as test tubes, flasks, retorts etc. is covered under this exception.

3D002 Equipment related to P3, P4 facilities such as protective suits and class III safety cabinets.

3D003 Complete containment facilities at P3, P4, containment level as specified in the WHO biosafety manual.

Category 4 Avionics and Navigation

(i) Guidance systems and their components such as gyros and inertial reference units

(ii) Compasses, gyroscopes, accelerometers and inertial equipment and specially designed software therefor and specially designed components therefor for use in rocket systems;

(a) Integrated flight instrument systems;

(b) Gyro-astro compasses;

(c) Accelerometers;

(d) Gyroscopes;

(e) Inertial or other equipment using accelerometers or systems incorporating such

equipment, and specially designed integration software therefor;

(iii) Encrypted telemetry systems, equipment and software therefor.

(iv) Flight control system for use in rocket systems as follows as well as the specially designed test, calibration, and alignment therefor.

(a) Hydraulic, mechanical, electro-optical or electro-mechanical flight control systems (including fly-by-wire systems) specially designed or modified for rocket systems;

(b) Attitude control equipment specially designed or modified for rocket system;

(c) Design technology for integration of flight control, guidance, and propulsion data into a flight management system for optimization of rocket system trajectory.

(vi) Integrated flight instrument systems;

(vii) Avionics equipment specially designed or suitable for use in rocket systems and specially designed software and components therefor for use in rocket systems, including but not limited to.

(a) Radar and laser radar system;

(b) Electronic assemblies and components for rocket system;

(c) Design technology for protection of avionics and electrical subsystems against electromagnetic pulse (EMP) and electromagnetic interference (EMI) hazards from external sources.

(d) Passive sensors for determining bearings, electromagnetic sources or terrain characteristics

- (e) Global Positioning System (GPS) capable of operating at speeds greater than 500 m/s and at altitudes greater than 18 kms.
- (viii) On-board electronic equipment, devices and their design and manufacturing know-how (except warhead fuses, timers and sequencers), and embedded or specially designed software therefor, for rocket systems.
- (ix) Telemetry and telecontrol equipment suitable for use with rocket systems;
- (x) Precision tracking systems and related software.

Category 5: Aerospace materials, equipment, systems and related technologies

5A Materials

5A001 Structural materials such as:

- (a) Composite Structures, laminates, and manufacturers thereof, including resin impregnated fibre preregs and metal coated fibre preforms therefor, specially designed for use in rocket systems and subsystems made either with an organic matrix or metal matrix utilizing fibrous or filamentary reinforcements;
- (b) Resaturated pyrolyzed (i.e. Carbon-Carbon) materials specially designed for rocket systems;
- (c) Fine grain artificial graphites and pyrolytic or fibrous reinforced graphites for rocket

nozzles and reentry vehicles nosetips;

(d) Ceramic composite materials for use in missile radomes and nose tips;

(e) Structured materials and coatings for reduced radar reflectivity

5A002 Rocket propellants and constituent chemicals for propellants as follows:-

(a) Propulsive substances-Hydrazine, Monomethylhydrazine (MMH), Unsymmetrical di-methyl hydrazine (UDMH), ammonium perchlorate, spherical aluminium powder, Nitroamines (Cyclotetramethylene-tetranitramine (HMX), cyclotetramethylenetrinitramine (RDX),

(b) Metal Fuels consisting of any of the following: Zirconium, titanium, uranium, tungsten, boron, zinc, and alloys of these magnesium, Misch metal, when specially formulated as propulsive substances;

(c) Polymeric substances: Carboxyl-terminated polybutadiene (CIPB), Hydroxy-Terminated Polybutadiene (HTPB); Glycidyl azide polymer (GAP), Polybutadiene acrylic acid (PBAA), Polybutadiene acrylic acid acrylonitrile (PBAN);

(d) Composite propellants and composite modified double base propellants;

(e) High energy density fuels such as boron slurry;

(f) Oxidizers/fuels - Perchlorates, chlorates or chromates mixed with powdered metals or other high energy fuel components; Dinitrogen trioxide, Nitrogen dioxide / Dinitrogen tetroxide, Dinitrogen pentoxide, Inhibited red fuming nitric acid (IRFNA), Ammonium

perchlorate, Ammonium Dinitramide (ADM);

(g) Bonding agents - Tris (1-2 (2-methyl)) aziridiny phosphine oxide (MAPO), Trimesoyl-1-(2-ethyl) aziridene (HX-868, BITA), Tepanol (HX-878), Tepan (HX-879), HX-752, HX-874, HX-877;

(h) Curing agents and catalysts - Triphenyl bismuth (TPB);

(i) Burning rate modifiers - Catocene, N-butyl ferrocene, Butacene, Ferrocene derivatives, Carboranes, Decarboranes, Pentaboranes;

(j) Esters and plasticizers - Triethylene glycol dinitrate (TEGDN), Trimethloethane trinitrate (TMETN), 1,2,4-Butanetriol trinitrate (BTTN), Diethylene glycol dinitrate (DEGDN)

(k) Stabilisers - 2-Nitrodiphenylamine, N-methyl-p-nitroaniline

5A003 High explosives, propellants or substances or mixtures containing more than 2% of any of the following;

(a) Cycloteramethylenetetranitramine (HMX);

(b) Cyclotrimethylenetrinitramine (RDX);

(c) Triaminotrinitrobenzene (TATE);

(d) Hexanitrostilbene (HNS).

5B Equipment and systems

5B001 Pulsed electron accelerators

5B002 Hardware, technology, production facilities and components for missiles and rockets (other than JATO units, unguided rocket-propelled munitions, and propulsion units for flares ejection seats and like emergency escape equipment), including:

- (a) complete rocket systems, individual rocket stages with or without engines such as:
- (b) solid or liquid fuel rocket engines and their control systems, except for satellite control;
- (c) Heat shields fabricated of ceramic or ablative materials;
- (d) Electronic equipment specially designed or modifiable for use in rockets.

5B003 Sub-systems, design, technology, know-how components and manufacturing equipment for missiles and rockets including:-

- (a) Rocket motor cases, interior lining, insulation and nozzles;
- (b) Rocket staging mechanisms, separation mechanisms and inter-stages;
- (c) Liquid and slurry propellant control systems, and components thereof, specially designed or modified for resistance to vibration.
- (d) Re-entry systems, heat-shields;
- (e) Solid or liquid propellant rocket engines;
- (f) Guidance systems and their components such as gyros and inertial reference units;
- (g) Thrust-vector control;
- (h) Hybrid rocket motors and components therefor

5B005 Launch and ground support equipment and facilities usable for rocket system as follows:-

- (a) Apparatus and devices specially designed or modified for launching of the system.

5C Test Equipment

5C001 Supersonic, hypersonic and hypervelocity wind tunnels; gun tunnels; aeroballistic ranges.

5C002 Test facilities designed to handle solid or liquid fuel rockets except for satellite control.

5C003 Vibration test equipment and components using digital control techniques and feedback or closed loop test equipment and software therefor

5C004 Environmental chambers simulating altitudes above 15 km, temperature ranging between minus 50 and plus 125 degrees centigrade.

5C005 Acoustic test facility with sound pressure level greater than 140 dB or rated power output greater than 4KW.

5D Manned-aircraft, aero-engines, related equipment and components:

Note This category does not control an Indian military aircraft carrying a military registration number.

a. Combat "aircraft" and specially designed components therefor;

- b. Other "aircraft" specially designed or modified for military use, including military reconnaissance, assault, military training, transporting and air-dropping troops or military equipment, logistics support, and specially designed components therefor;
- c. Aero-engines specially designed or modified for military use, and specially designed components therefor;
- d. Airborne equipment, including airborne refuelling equipment, specially designed for use with the aircraft controlled by **5Da** or **5Db** or the aero-engines controlled by **5Dc**, and specially designed components therefor;
- e. Pressure refuellers, pressure refuelling equipment, equipment specially designed to facilitate operations in confined areas and ground equipment, developed specially for "aircraft" controlled by **5Da** or **5Db** or for aero-engines controlled by **5Dc**;
- f. Pressurized breathing equipment and partial pressure suits for use in "aircraft" anti-g suits, military crash helmets and protective masks, liquid oxygen converters used for "aircraft" or missiles, and catapults and cartridge actuated devices for emergency escape of personnel from "aircraft";
- g. Parachutes:
 - 1. Paragliders, drag parachutes, drogue parachutes for stabilization and attitude control of dropping bodies, (e.g. recovery capsules, ejection seats, bombs);
 - 2. Drogue parachutes for use with ejection seat systems for deployment and inflation sequence regulation of emergency parachutes;
 - 3. Recovery parachutes for guided missiles, drones or space vehicles;
 - 4. Approach parachutes and landing deceleration parachutes;

h. Automatic piloting systems for parachuted loads, equipment specially designed or modified for military use for controlled opening jumps at any height, including oxygen equipment.

Note 1 **5Db** does not control "aircraft" or variants of those "aircraft" specially designed for military use which:

(i). Have been certified for civil use by the civil aviation authority of India, and

(ii). Are not configured for military use and are not fitted with equipment or attachments specially designed or modified for military use;

Note 2 The control in **5Db** and **5Dc** on specially designed components and related equipment for non-military "aircraft" or aero-engines modified for military use applies only to those military components and to military related equipment required for the modification to military use.

5E Unmanned airborne vehicles and related equipment, specially designed or modified for military use as follows, and specially designed components therefor;

(a). Unmanned airborne vehicles including remotely piloted air vehicles (RPVs) and autonomous programmable vehicles;

(b). Associated launchers and ground support equipment;

(c). Related equipment for command and control.

Note This category does not control unpowered airborne vehicles such as gliders, hot air balloons etc.

5F Microlight aircraft and powered 'hang-gliders'

Category 6 [RESERVED]

Category 7: Electronics, computers, and information technology including information security

7A Electronics

7A001 High-power microwave tubes, travelling wave tubes and microwave phase shifters.

7B [Reserved]

7C Computers

7C001 Digital computers and software as follows:

- (i) "Digital computers having a composite theoretical performance (CTP) exceeding 2000 (two thousand) million theoretical operations per second (Mtops)
- (ii) Software, and/or computer inter-connection schemes, whether or not co-supplied with (a) designed to 'parallelise' digital computers (individually of any CTP rating) enabling a CTP of more than 2000 Mtops to be achieved by the 'parallelising'

configuration"

Explanatory notes

(a) The Composite Theoretical Performance (CTP) rating is to be calculated in accordance with the calculation scheme separately notified in this regard.

(b) Individual digital computers each with a CTP rating of 2000 Mtops or less do not require an export license to any destination or end-user, unless supplied with (ii)

(c) "Digital Computers" includes (1) hybrid computers incorporating 'digital computers' or specified in (i) above, systolic array computers, neural computers, optical computers, biological computers, vector processors, digital signal processors, logical processors (2) digital electronic equipment designed for 'image enhancement' or signal processing other than when supplied as integral adjuncts to medical imaging (eg CAT-scanning) equipment.

7C002 Specially designed software, and/or related specially designed analogue or hybrid computers, for modelling, simulation, or design integration of rocket systems.

7D Information technology including information security

7D001 Data processing security equipment, data security equipment and transmission and signalling line security equipment, using ciphering processes.

7D002 Identification, authentication and keyloader equipment and key management, manufacturing and distribution equipment.

7E [Reserved]