

***U.S. DEPARTMENT OF COMMERCE
Office of Inspector General***



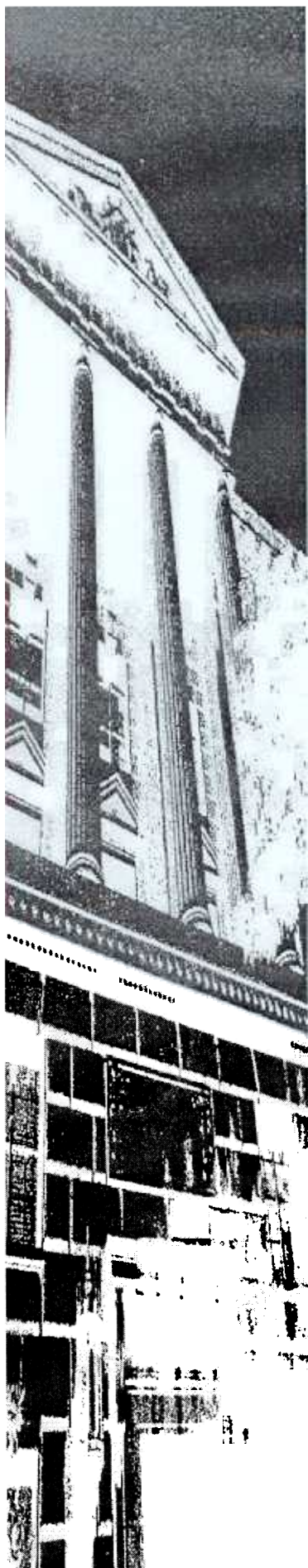
PUBLIC RELEASE

BUREAU OF INDUSTRY AND SECURITY

***Deemed Export Controls
May Not Stop the Transfer of Sensitive
Technology to Foreign Nationals in the U.S.***

Final Inspection Report No. IPE-16176—March 2004

Office of Inspections and Program Evaluations



B. Confusion exists over what is meant by “use” of EAR-controlled equipment by foreign nationals

Technology and technological data involved in operating equipment included on the Commerce Control List (CCL) is subject to the deemed export provisions of the EAR. For example, because of their use related to chemical and biological warfare and anti-terrorism, the technologies associated with a fermenter having a 20-liter, or larger, capacity are controlled by inclusion on the CCL under Export Control Classification Number (ECCN) 2E301. According to the EAR, “use” of equipment included on the Commerce Control List is defined as:

Operation, installation (including on-site installation),
maintenance (checking), repair, overhaul and refurbishing.²⁴

As such, some of BIS’ senior licensing officials maintain that for consistency purposes in the EAR, the word “and” in the definition infers that all of the activities have to be accomplished to constitute “use.” We disagree.

First, we believe the definition could be interpreted as simply a listing of the various activities associated with the term “use” which does not require that *each* activity be accomplished to constitute use. Second, although BIS normally grants approval for a foreign end user to operate, install, maintain, repair, overhaul, and refurbish a piece of controlled equipment exported from the United States in order to permit the full range of uses for an export, the same definition of use does not seem to apply to deemed exports (i.e., foreign nationals “using” the equipment in the United States.). It is unlikely that one individual who has access to the technology for the use of a controlled piece of equipment—as is the case with a deemed export—would have the “know-how” and be assigned the responsibility for undertaking all six of these tasks.

BIS officials were unable to provide us any documents discussing the origin of the EAR definition or what the original intent of the definition may have been. To expand our search for source documentation, we reviewed the control lists from the four multilateral regimes concerned with the export of dual-use and munitions items to countries of concern,²⁵ but we found that even these regimes were split as to how the term “use” is defined. Specifically, the commodity lists for the Wassenaar Arrangement and the Nuclear Suppliers Group offer the same definition as the CCL. However, the Australia Group and the Missile Technology Control Regime define the term either with an “or,” or without any connector word (i.e., as a bullet list of the activities). All of these lists, we should note, are focused on regular exports rather than deemed exports.

²⁴ 15 CFR 772.

²⁵ The United States is a member of several multilateral regimes concerned with a variety of issues. The four concerned with dual-use and munitions items are the Australia Group (concerned with the proliferation of chemical and biological weapons), the Missile Technology Control Regime (concerned with the proliferation of missiles capable of delivering weapons of mass destruction), the Nuclear Suppliers Group (concerned with nuclear weapons proliferation), and the Wassenaar Arrangement (concerned mainly with the transfer of conventional weapons).

Given the Defense Technology Security Administration's role in the interagency licensing process, we asked how it interprets the term "use." According to its interpretation, ". . . the 'use' term means operation *and/or* installation (including on-site installation) *and/or* maintenance (checking) *and/or* repair *and/or* overhaul *and/or* refurbishing." [Emphasis added.] After discussing this issue at our exit conference, senior BIS officials agreed that the interpretation should be modified to read "and/or."

How "use" is interpreted is critical in determining how to implement and enforce the deemed export provisions in the EAR. For instance, as we noted in our March 2000 report, the U.S. academic and Federal research communities generally consider most of the research they conduct to be exempt from export controls because of the EAR fundamental research exemption. However, when foreign nationals are given access to equipment at a U.S. university or Federal research facility, that equipment may be accompanied by some transmittal of use or other information or instruction constituting controlled technology. From our discussions about deemed export controls with some of the leading U.S. academic institutions and Federal research agencies, we learned that most had not thought about the transfer of technology for the "use" of controlled equipment in the context of deemed exports. (Further discussion on this issue, as it relates to NIST and NOAA, is provided in Chapter Four of this report.) Other academic representatives we met with contend that in the context of fundamental research, technology relating to the "use" of controlled equipment is also exempt under the EAR fundamental research exemption. However, according to BIS, technology relating to controlled equipment—regardless of how "use" is defined—is subject to the deemed export provisions even if the research being conducted with that equipment is fundamental. This would mean that many of the academic and Federal laboratories or other institutions would need to seek deemed export licenses for some foreign nationals working with controlled equipment or otherwise restrict their access to such equipment.

In relation to our fermenter example (above), we noted that at least two of the nine academic institutions we visited have state-of-the-art fermentation facilities (one housing a 250-liter fermenter and the second a 300-liter fermenter). These fermentation facilities are usually accessible to any university student, researcher, or employee and, in some cases, to the private sector. However, using BIS' current interpretation of "use"—that all activities listed in the definition must be undertaken—the objective of technology control associated with this or other EAR-controlled equipment becomes almost unobtainable.

RECOMMENDATIONS: BIS should modify the definition of "use" in the EAR in order to help licensing and enforcement officials better implement and enforce deemed export controls associated with the technology for the use of controlled equipment. Once this effort has been completed, BIS should inform the U.S. academic community, industry, and Federal agencies of the deemed export controls associated with the technology for the use of EAR-controlled equipment by foreign nationals.



In its written response to our draft report, BIS stated that it is prepared to work with the Office of Chief Counsel for Industry and Security as well as the Departments of Defense and State to

determine whether the current definition of “use” technology should be revised in the EAR and whether this definition in the multilateral export control regimes should be harmonized. It further stated that if the agencies agree to revise the regulation, BIS will publish the regulatory revision and incorporate it into outreach to government agencies, industry, and universities to ensure that there is a common interpretation and correct application of this term as it relates to deemed exports. In addition, BIS stated that future outreach efforts will make clear that technology for the “use” of controlled equipment is subject to licensing requirements even if the research being conducted with that equipment is fundamental. To assure wider distribution of this information to the general exporting community, BIS stated that it will modify the generic “use” technology presentation currently used in its export control seminars to clarify the term and when license requirements are triggered for deemed exports.

~~C. *BIS’ deemed export control policy does not take into account all the nationalities a foreign national has ever maintained.*~~

~~According to senior BIS officials and guidance provided on its web site,²⁶ BIS’ deemed export licensing policy only recognizes a foreign national’s most recent citizenship or permanent residency. Thus foreign nationals who are citizens or permanent residents of countries not designated as countries of concern and, therefore, not subject to licensing requirements, can gain access to controlled dual use technology without scrutiny regardless of their country of origin. For example, a person born in Iran who is currently a citizen of Canada would be categorized as Canadian according to the EAR even if she/he maintained dual citizenship as an Iranian. In this instance, given that most exports to Canada are not controlled,²⁷ a deemed export license would not be required for this foreign national.~~

~~By not requiring employers to obtain export licenses in this type of situation, foreign nationals who originate from countries of concern and have access to controlled dual use technology are able to bypass the extensive screening process required of a deemed license application. Comparatively, if that same foreign national came directly to the United States from Iran on an H1-B visa²⁸ with the intent of working on controlled dual-use technology, the U.S. employer would be required to apply for a BIS deemed export license for that particular foreign national.~~

~~BIS’ policy contrasts with that of the State Department’s Directorate of Defense Trade Controls, which requires export license applications involving munitions to include all current nationalities for all foreign national employees expected to receive defense services and technical data. As such, State prescribes that a person born in Syria, who later becomes a citizen or permanent resident of Canada while retaining his Syrian citizenship, should be regarded as both Syrian and Canadian.~~

²⁶ See <http://www.bis.doc.gov/deemedexports/deemedexportsfaq.html> (January 6, 2004).

²⁷ The EAR maintains limited controls for exports to Canada, including items controlled for chemical and biological weapons concerns and for items, such as shotguns and optical sighting devices, that fall under the jurisdiction of the 1997 Organization of American States firearms convention.

²⁸ High-technology visas are issued under the H1-B visa category. H1-B is a temporary visa category, which is valid for three years and can be extended for another three. This category includes specialty occupations, such as architects, engineers, doctors, college professors, and computer programmers.

Commerce Control List - Index

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Description	ECCN Citation
Avionic equipment, parts, and components	7A994
Avionics EMP/EMI protection technology	7E102
Bacillus anthracis	1C351.c.1
Bacteria	1C351.c
Bacteria	1C354.a
Bacteria	1C352.b
Baffles	0A001.h
Baffles (rotor tube), gas centrifuge	0B001.c.7
Balancing machines	2B119.a
Balancing machines	7A104.a
Balancing instrumentation	7A104.b
Balancing machines, centrifugal multiplane	2B229
Balancing machines, centrifugal multiplane	2B999.m
Ball bearings, precision hardened steel and tungsten carbide	1C999.a
Ball & solid roller bearings	2A001.b
Ball & solid roller bearings	2A001.a
Band-pass filters, tunable	3A001.b.5
Barium metal vapor lasers	6A005.a.2.d
Bartonella quintana	1C351.b.1
Batch mixers	1B117
Bathymetric survey systems	6A001.a.1.b
Batteries/cells, rechargeable	3A001.e.1.b
Batteries/cells, primary	3A001.e.1.a
Bay cable systems	6A001.a.2.e
Bay cable systems software	6D003.a.3
Bayonets	0A918.b
Beam lead bonders, stored program controlled equipment	3B991.b.3.b
Beam steering mirrors	6A004.a.4
Beamforming techniques	6A001.a.2.c
Bearings, ball & solid roller	2A001.a
Bearings, ball & solid roller	2A001.b
Bearings, gas centrifuge	0B001.c.4
Bearings, gas centrifuge	0B001.c.5
Bearings, high precision/temperature/special	2A001
Bearings, magnetic (active)	2A001.c
Bearings, magnetic (suspension)	0B001.c.4
Bearings, precision hardened steel and tungsten carbide	1C999.a
Bearings, solid roller	2A001.b
Bellow valves	0B001.b.1
Bellow valves	0B001.d.6
Bellows forming dies	2B999.b
Bellows manufacturing equipment	2B999.b
Bellows or rings, gas centrifuge	0B001.c.6
Bellows pumps	2B350.i
Bellows seal valves	2A226
Bellows seal valves	2B350.g
Bellows sealed valves, n.e.s.	2A999
Bellows-forming mandrels	2B228.c
Bellows-forming dies	2B228.c
Benzilic acid	1C350.b.2
Beryllium metal, alloys, compounds, or manufactures	1C230
Beryllium metal particulate	1C111.a.2.b
Beryllium/beryllium substrate blanks	6C004.d
Biological containment facilities, ACDP level 3 or 4	2B352.a
Biological isolators	2B352.f.2
Biological manufacturing equipment & facilities	2B352
Biological safety cabinets	2B352.f.2
Bismaleimides	1C008.a.1
Bismuth	1C229
Bladders for aircraft/aerospace, fuel	1A001.a
Bladders for aircraft/aerospace/missiles, fuel	1A001.c
Blanks, beryllium/beryllium (Be/Be) deposited material	6C004.d

License Requirements

Reason for Control: CB, AT

<i>Control(s)</i>	<i>Country Chart</i>
CB applies to entire entry	CB Column 3
AT applies to entire entry	AT Column 1

License Exceptions

LVS: N/A
 GBS: N/A
 CIV: N/A

List of Items Controlled

Unit: Equipment in number

! *Related Controls:* See ECCNs 1A004 and 1A995 for detection equipment that is not covered by this entry.

Related Definitions: For the purposes of this entry, the term “continuous operation” describes the capability of the equipment to operate on line without human intervention. The intent of this entry is to control toxic gas monitoring systems capable of collection and detection of samples in environments such as chemical plants, rather than those used for batch-mode operation in laboratories.

Items:

a. Designed for continuous operation and usable for the detection of chemical warfare agents or chemicals controlled by 1C350 at concentrations of less than 0.3mg/m³ (see technical note below);
 or

b. Designed for the detection of cholinesterase-inhibiting activity.

Technical Note: *Toxic Gas Monitoring Systems, controlled under 2B351.a., include those with detection capability for chemicals containing phosphorus, sulfur, fluorine or chlorine, other*

than those specified in 1C350.



2B352 Equipment capable of use in handling biological materials, as follows (see List of Items Controlled).

License Requirements

Reason for Control: CB, AT

<i>Control(s)</i>	<i>Country Chart</i>
<u>CB applies to entire entry</u>	<u>CB Column 3</u>
AT applies to entire entry	AT Column 1

License Exceptions

LVS: N/A
 GBS: N/A
 CIV: N/A

List of Items Controlled

Unit: Equipment in number

! *Related Controls:* See ECCNs 1A004 and 1A995 for protective equipment that is not covered by this entry.

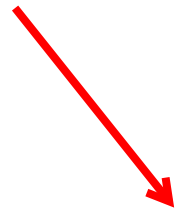
Related Definitions: For purposes of this entry, isolators include flexible isolators, dry boxes, anaerobic chambers and glove boxes.

Items:

a. Complete containment facilities at P3 or P4 containment level.

Technical Note: *P3 or P4 (BL3, BL4, L3, L4) containment levels are as specified in the WHO Laboratory Biosafety Manual (Geneva, 1983).*

b. Fermenters capable of cultivation of pathogenic microorganisms, viruses, or for toxin production, without the propagation of aerosols, having a capacity equal to or greater than 20 liters.



Technical Note: *Fermenters include bioreactors, chemostats, and continuous-flow systems.*

c. Centrifugal separators capable of the continuous separation of pathogenic microorganisms, without the propagation of aerosols, and having all of the following characteristics:

- c.1. One or more sealing joints within the steam containment area;
- c.2. A flow rate greater than 100 liters per hour;
- c.3. Components of polished stainless steel or titanium; and
- c.4. Capable of in-situ steam sterilization in a closed state.

Technical Note: *Centrifugal separators include decanters.*

d. Cross (tangential) flow filtration equipment and accessories, as follows:

d.1. Cross (tangential) flow filtration equipment capable of separation of pathogenic microorganisms, viruses, toxins or cell cultures, without the propagation of aerosols, having all of the following characteristics:

- d.1.a. A total filtration area equal to or greater than 1 square meter (1 m²); and
- d.1.b. Capable of being sterilized or disinfected in-situ.

N.B.: *2B352.d.1 does not control reverse osmosis equipment, as specified by the manufacturer.*

d.2. Cross (tangential) flow filtration components (e.g., modules, elements, cassettes, cartridges, units or plates) with filtration area equal to or greater than 0.2 square meters (0.2 m²) for each component and designed for use in cross (tangential) flow filtration equipment controlled by 2B352.d.1.

Technical Note: *In this ECCN, “sterilized” denotes the elimination of all viable microbes*

from the equipment through the use of either physical (e.g., steam) or chemical agents. “Disinfected” denotes the destruction of potential microbial infectivity in the equipment through the use of chemical agents with a germicidal effect. “Disinfection” and “sterilization” are distinct from “sanitization”, the latter referring to cleaning procedures designed to lower the microbial content of equipment without necessarily achieving elimination of all microbial infectivity or viability.

e. Steam sterilizable freeze-drying equipment with a condenser capacity of 10 kgs of ice or greater in 24 hours, but less than 1,000 kgs of ice in 24 hours.

f. Protective and containment equipment, as follows:

f.1. Protective full or half suits, or hoods dependant upon a tethered external air supply and operating under positive pressure;

Technical Note: *This entry does not control suits designed to be worn with self-contained breathing apparatus.*

f.2. Class III biological safety cabinets or isolators with similar performance standards, e.g., flexible isolators, dry boxes, anaerobic chambers, glove boxes or laminar flow hoods (closed with vertical flow).

g. Chambers designed for aerosol challenge testing with microorganisms, viruses, or toxins and having a capacity of 1 m³ or greater.

2B991 Numerical control units for machine tools and “numerically controlled” machine tools, n.e.s.

License Requirements

Reason for Control: AT

Control(s)

Country Chart