Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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Prescribed and Adopted Forms.

Adopted Forms

AF Form 847, Recommendation for Change of Publication

Shippers Declaration for Dangerous Goods

GDSS Mission Detail/Form 59

DD Form 2133, Joint Airlift Inspection Record/Checklist

Hazmat Acceptance and Inspection Checklist

Abbreviations and Acronyms

AFBDS—Aerial Bulk Fuel Delivery System

AFIMSC—Air Force Installation and Mission Support Center

AFMC—Air Force Materiel Command

AMC—Air Mobility Command

APOD—Areial Port of Debarkation

APOE—Areial Port of Embarkation

ASME—American Society of Mechanical Engineers

ASTM—American Society for Testing and Materials

ATA—Air Transport Association

ATOC—Air Terminal Operations Center

Bq/cm²—Bequerel Per Square Centimeter

BSAT—Boilogical Select Agent and Toxin

CAA—Competent Authority Approval

CBRNE— Chemical, Biological, Radioactive, Nuclear, and High-Yield Explosives

CERCLA—Comprehensive Environmental Response, Compensation, and Liability Act

CDC—Centers for Disease Control and Prevention

CFR—Code of Federal Regulations

CN—Nominal Capacitance

COE—Certification of Equivalency

CONEX—Container Express

CONUS—Continental United States

CRAF—Civil Reserve Air Fleet

CRR—Complete Round Rigging

DACG—Departure Airfield Control Group

DCSA—Defense Security Cooperation Agency

DDOC—Deployment Distribution Operations Center

DESR—Defense Explosive Safety Regulation

DLA—Defense Logistics Agency

DOD—Department of Defense

DODD—Department of Defense Directive

DOE—Department of Energy

DOT—Department of Transportation

DSN—Defense Switched Network

DTR—Defense Transportation Regulation

DTS—Defense Transportation System

EOD—Explosive Ordnance Disposal

EPA—Environmental Protection Agency

ERG—Emergency Response Guidebook

EX—Explosive Approval

FAR—Federal Acquisition Regulation

FMS—Foreign Military Sales

FRH—Flameless Ration Heater

G—Gross

GDSS—Global Decision Support System

GPS—Global Positioning System

HMIRS—Hazardous Material Information Resource System

HM—Hazardous Material

HMMWV—High Mobility Multi-Wheeled Vehicle

IAEA—International Atomic Energy Agency

IATA—International Air Transportation Association, Dangerous Goods Regulations

IBC—Intermediate Bulk Container

IBD—Inhabited Building Distance

ICAO—International Civil Aviation Organization, Technical instructions for the Safe Transport of Dangerous Goods by Air

ICC—Interstate Commerce Commission

ID—Identification

IHC—Interim Hazard Classification

IRFNA—Inhibited Red Fuming Nitric Acid

IRSO—Installation Radiation Safety Officer

ISO—International Organization for Standardization

ITO—Installation Transportation Officer

JCS—Joint Chiefs of Staff

JHCS—Joint Hazard Classification System

KPa—Kilopascal

LSA—Low Specific Activity

MAJCOM—Major Command

MFR—Manufacturer

MEGC— Multiple-Element Gas Container

MILVAN—Military Van

MOS—Military Occupational Specialty

MRE—Meals Ready to Eat

mrem/h—Millirems per hour

MSL—Military Shipping Label

mSv/h—Millisieverts per hour

NA—North American

NALO—Navy Air Logistics Office

NEW—Net Explosive Weight

N.O.S.—Not Otherwise Specified

NPT—National Pipe Thread

NSN—National Stock Number

OCONUS—Outside Continental United States

Oplans—Operating Plans

OPR—Office of Primary Responsibility

PCB—Polychlorinated Biphenyls

PG—Packing Group

POD—Port of Debarkation

POE—Port of Embarkation

POP—Performance Oriented Packaging

PPM—Parts Per Million

PSI—Pounds Per Square Inch

PSIA—Pounds Per Square Inch Absolute

PSIG—Pounds Per Square Inch Gauge

PSN—Proper Shipping Name

RQ—Reportable Quantity

SAAM—Special Assignment Airlift Mission

SCF—Standard Cubic Feet

SCFH—Standard Cubic Feet per Hour

SCO—Surface Contaminated Object

SCUBA—Self Contained Underwater Breathing Apparatus

SDR—Supply Discrepancy Report

SDS—Safety Data Sheet

SE—Support Equipment

SME—Subject Matter Expert

SP—Special Permit

SPI—Special Packaging Instruction

STAMP—Standard Air Munitions Package

TBq/L—Terabequerel per Liter

TCN—Transportation Control Number

T.O.—Technical Order

UAV—Unmanned Aerial Vehicle

UL—Lower Limit Voltage

UN—United Nations

UR—Rated Voltage

USG—United States Government

USAPHC--U.S. Army Public Health Command

USTRANSCOM—United States Transportation Command

UXO—Unexploded Ordnance

VCR—Vacuum Coupling Radiation

W/m2—Watts Per Square Meter

Terms

A1—The maximum activity of special form radioactive material permitted in a type A package.

A2—The maximum activity of radioactive material, other than special form, low specific activity radioactive material, and surface contaminated objects permitted in a type A package. These values are either listed in A11.4 or may be derived using the procedure in A11.3.

Adsorbed gas- A gas which when packaged for transport is adsorbed onto a solid porous material resulting in an internal receptacle pressure of less than 101.3 kPa at 20 degrees C and less than 300 kPa at 50 degrees C.

Activity (Radioactivity)— The number of radioactive atoms that decay per unit time. The unit of activity is the curie or bequerel. The amount of radioactivity that may be transported in various types of packages and various types of vehicles.

Aerial Port of Debarkation (APOD)— Any airfield location where hazardous materials are received by military controlled airlift whether by channel, SAAM, airdrop, exercise, or deployment.

Aerial Port of Embarkation (APOE)— Any airfield location where hazardous materials are entered into the Defense Transportation System in accordance with DTR 4500.9-R, for movement by military controlled airlift whether by channel, SAAM, airdrop, exercise, or deployment.

Aerosol—Any non-refillable receptacle containing a gas compressed, liquefied, or dissolved under pressure, the sole purpose of which is to expel a nonpoisonous (other than a division 6.1 packing group III material) liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste, or powder, or in a liquid or gaseous state.

Accessorial hazard—A distinct and separate hazardous item that is a component or integral part of a larger item that is considered the primary hazard.

Article—A manufactured item, containing a hazardous material or substance, in a specific shape or design which end use is dependent on the shape or design. The shape or design prevents loss of hazardous contents during normal conditions of transport.

Atmospheric Pressure—Atmospheric pressure is 101.3kPa (14.7 psi).

Bag—A flexible packaging made of paper, plastic film, textiles, woven material or other similar materials.

Becquerel (Bq)—The unit of measure for the activity of a radioactive material. Because this is a very small unit of measure (1 Bq = one atomic transformation per second), the standard is the

larger multiple terabecquerel (TBq). One TBq = one trillion Bq. Other multiples may also be used (MBq, GBq). This unit of measure is used when measuring how radioactive the item is.

Biological Product—A virus, therapeutic serum, toxin, antitoxin, vaccine, blood, blood component or derivative, allergenic product, or analogous product used in the prevention, diagnosis, treatment, or cure of diseases in humans or animals. A biological product includes a material manufactured and distributed in accordance with one of the following provisions:

- Title 9, Code of Federal Regulations, Part 102, *Licenses for Biological Products, current edition*; 9 CFR Part 103 (*Experimental Products, Distribution, and Evaluation of Biological Products Prior to Licensing*); 9 CFR Part 104, *Permits for Biological Products*;
- Title 21, Code of Federal Regulations, Part 312, *Investigational New Drug Application*; 21 CFR Part 314 *Applications for FDA Approval to Market a New Drug*; 21 CFR Parts 600 to 680, *Biologics*; or 21 CFR Part 812 *Investigational Device Exemptions*. Unless otherwise excepted, a *biological product* known or reasonably expected to contain a pathogen that meets the definition of a Category A or B infectious substance must be assigned the identification number UN2814, UN2900, or UN3373, as appropriate. **(T-0).**

Biological Substances, Category B - An infectious substance not in a form generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs.

Bottle—An inner packaging having a neck of relatively smaller cross section than the body and an opening capable of holding a closure for retention of the contents.

Box—A packaging with complete rectangular or polygonal faces made of metal, wood, plywood, reconstituted wood, fiberboard, plastic, or other suitable material.

Bulk Packaging— A packaging, other than a vessel or a barge, including a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment. A Large Packaging in which hazardous materials are loaded with an intermediate form of containment, such as one or more articles or inner packagings, is also a bulk packaging. Additionally, a bulk packaging has: a maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid; a maximum net mass greater than 400 kg (882 pounds) and a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid; or a water capacity greater than 454 kg (1000 pounds) as a receptacle for a gas as defined in 49 CFR Section 173.115.

Channel Airlift—Common user airlift service provided on a scheduled basis between two points.

Class 1 (Explosives)—Any substance or article (including a device) which is designed to function by explosion (e.g., an extremely rapid release of gas and heat). Unless the substance or article is otherwise classed in Table A4.1., the term "explosive" may also refer to an item that is able to produce a chemical reaction within itself and is able to function in a similar manner even if not designed to function by explosion. Explosives in Class 1 are divided into six divisions as follows:

1. **Division 1.1**-Consists of explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.
2. **Division 1.2**-Consists of explosives that have a projection hazard but not a mass explosion hazard. Additionally, there are three subdivisions (1.2.1, 1.2.2 and 1.2.3). Refer to Defense Explosive Safety Regulation (DESR) 6055.9 for specific subdivision definitions.

3. **Division 1.3**-Consists of explosives that have a fire hazard and a minor blast hazard or a minor projection hazard (or both), but not a mass explosion hazard.
4. **Division 1.4**-Consists of explosive devices that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire does not cause virtually instantaneous explosion of almost the entire contents of the package.
5. **Division 1.5**-Consists of very insensitive explosives. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal transportation conditions.
6. **Division 1.6**-Consists of extremely insensitive articles that do not have a mass explosion hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. The risk from these articles is limited to the explosion of a single article.

Class/Division 2.1 (Flammable Gas)—Any material that is a gas (boiling point) at 20 degrees C (68 degrees F) or less and has a pressure of 101.3 kPa (14.7 psia), in addition to one of the following properties:

1. Is ignitable at 101.3 kPa (14.7 psia) when in a mixture of 13 percent or less by volume with air.
2. Has a flammable range of 101.3 kPa (14.7 psia) with air of at least 12 percent regardless of the lower limit.
3. The limits specified above is determined at 101.3 kPa (14.7 psia) of pressure and a temperature of 20 degrees C (68 degrees F) according to ASTM E681-85 Standard Test Method for Concentration Limits of Flammability of Chemicals.

Class/Division 2.2 (Nonflammable, Nonpoisonous Compressed Gas, Including Compressed Gas, Liquefied Gas, Pressurized Cryogenic Gas, Compressed Gas in Solution, **asphyxiant gas and oxidizing gas)**— Any material (or mixture) which exerts in the packaging a gauge pressure of 200 kPa (29 psig/43.8 psia) or greater at 20 degrees C (68 degrees F), is a liquefied gas or is a cryogenic liquid, and does not meet the definition of Division 2.1 or 2.3.

Class/Division 2.3 (Gas Poisonous by Inhalation)—Any material that is a gas (boiling point) at 20 degrees C (68 degrees F) or less and has a pressure of 101.3 kPa (14.7 psia), in addition to one of the following properties:

1. The material is known to be so toxic to humans as to pose a hazard to health during transportation.
2. In the absence of adequate data on human toxicity, the material is presumed to be toxic to humans because when tested it has an LC_{50} (inhalation toxicity) value of not more than 5000 parts per million (ppm).

Class 3 (Flammable Liquid)—A flammable liquid is any liquid having a flash point equal to or below 60 degrees C (140 degrees F), or liquids offered for transportation at temperatures at or above their flash point, except:

1. Any liquid meeting the definition of a Class 2 material.
2. Any mixture having one or more compounds with a flash point above 60 degrees C (140 degrees F) that makes up at least 99 percent of the total volume of the mixture. Distilled spirits of 140 proof or lower are considered to have a flash point no lower than 23 degrees C (73 degrees F).

Class/Division 4.1 (Flammable Solids)—Flammable solids consist of solids (other than those classed as explosives) which are readily combustible under conditions encountered in transport, or may cause or contribute to fire through friction.

Class/Division 4.2 (Spontaneously Combustible Material)—Liquids or solids which are prone to spontaneous heating under normal conditions encountered in transport or to heating in contact with air, thus being liable to ignite.

Class/Division 4.3 (Dangerous When Wet Material)—Solids that are liable to become spontaneously flammable or emit flammable or toxic gases when they come into contact with water.

Class/Division 5.1 (Oxidizers)—A material that may cause or enhance the combustion of other material, generally by yielding oxygen.

Class/Division 5.2 (Organic Peroxides)—Any organic compound containing oxygen (O) in the bivalent -O-O- structure, and which may be considered a derivative of hydrogen peroxide where one or more of the hydrogen atoms have been replaced by organic radicals. Organic peroxides are thermally unstable substances which may undergo exothermic self-accelerating decomposition. These substances may be prone to explosive decomposition or rapid burning; be sensitive to impact or friction; react dangerously with other material; or cause damage to the eyes. A material which meets this definition is classed in Class 5.2, unless it also meets the definition of a Class 1 material, or unless the available oxygen content of an organic peroxide formulation is less than the amount specified (by the percentage equation) in 49 CFR Section 173.128.

1. Type A: An organic peroxide that can detonate or deflagrate rapidly as packaged for transport. Transportation of type A organic peroxides is forbidden.
2. Type B: An organic peroxide that, as packaged for transport, neither detonates nor deflagrates rapidly, but can undergo a thermal explosion.
3. Type C: An organic peroxide that, as packaged for transport, neither detonates or deflagrates rapidly and cannot undergo a thermal explosion.
4. Type D: An organic peroxide which exhibits the following characteristics:

   4.1. Detonates only partially, but does not deflagrate rapidly and is not affected by heat when confined.

   4.2. Does not detonate, deflagrates slowly, and shows no violent effect if heated when confined.

4.3. Does not detonate or deflagrate, and shows a medium effect when heated under confinement.

5. Type E: An organic peroxide that neither detonates or deflagrates, and shows low or no effect when heated under confinement.

6. Type F: An organic peroxide that will not detonate in a cavitated state, does not deflagrate, shows low or no effect if heated when confined, and has low or no explosive power.

7. Type G: An organic peroxide that will not detonate in a cavitated state, will not deflagrate, shows no effect when heated under confinement, has no explosive power, is thermally stable (self—accelerating decomposition temperature is 50 degrees C (122 degrees F) or higher for a 50 kg (110 pounds) package). An organic peroxide meeting all characteristics of type G except thermal stability and requiring temperature control is classed as a type F, temperature control organic peroxide.

Class/Division 6.1 (Poisonous/Toxic Material)—A material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or is presumed to be toxic to humans because it falls within one of the test categories identified in 49 CFR Section 173.132. The term "toxic" and "poisonous" are used synonymously in this manual.

Class/Division 6.2 (Infectious Substances)—A material known to contain or suspected of containing a pathogen. A pathogen is a virus or micro-organism (including bacteria viruses, rickettsiae, parasites, fungi), or other agent such as a proteinaceous infectious particle (prion) that can cause disease in humans or animals. Division 6.2 materials are assigned to the following categories:

1. Category A – An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals, and is assigned UN2814 or UN2900, as appropriate.

2. Category B – An infectious substance which does not meet the criteria for inclusion in Category A, and is assigned UN3373. Formerly known as "diagnostic specimens," Category B materials are now described as "Biological Substances, Category B."

Class 7 (Radioactive Material)—Any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values in Table A.11.1.

Class 8 (Corrosive Material)—A liquid or solid that causes full thickness destruction of human skin at the site of contact within a specified period of time. A liquid, or a solid which may become liquid during transportation, that has a severe corrosion rate on steel or aluminum based on the criteria in 49 CFR Subparagraph 173.137(c)(2) is also a corrosive material. The main hazard from Class 8 liquids and vapors is the corrosive effect on humans and the aircraft or cargo. Some Class 8 materials have very dangerous additional hazards such as toxicity, flammability, and explosiveness.

Class 9 Material—A material that may pose an unreasonable risk to health, safety, or property during transport, but does not meet any of the definitions of the other hazard classes specified in this manual. This class includes:

1. A material that has an anesthetic, noxious, or other similar property which can cause extreme annoyance or discomfort to passengers and crew in the event of leakage during transportation, so as to prevent the correct performance of the crews assigned duties.
2. A material in quantities that meets the definition of a hazardous waste or a hazardous substance, but does not meet the definition of any other class.

Combination Packaging—A combination of packaging, for transport purposes, consisting of one or more inner packagings secured in a nonbulk outer packaging. It does not include a composite packaging.

Combustible Liquid—A combustible liquid is any liquid that does not meet the definition of any other classification specified in this manual and has a flash point above 60 degrees C (140 degrees F) and below 93 degrees C (200 degrees F). Any mixture having one or more components with a flash point of 93 degrees C (200 degrees F) or higher, that makes up at least 99 percent of the total volume of the mixture is not a combustible liquid.

Compatibility Group Letter—A designated alphabetical letter used to categorize different types of explosive substances and articles for stowage and segregation.

Complete Round Rigging (CRR)— All items, to include those normally incompatible (e.g., primers, propelling charges, projectiles, fuses, etc.), necessary to complete an end item when configured, packaged or unpackaged, on the same pallet or platform according to a Service approved technical order or publication.

Composite Packaging—Packaging consisting of an outer packaging and inner receptacle, so constructed that the inner receptacle and the outer packaging form an integral packaging. Once assembled it remains thereafter an integrated single unit; it is filled, stored, shipped, and emptied as such.

Compressed Gas- see "Class 2"

Compressed Gas in Solution—A nonliquefied compressed gas dissolved in a solvent.

Consignment—A package or group of packages or load of radioactive material offered by a person for transport in the same shipment.

Consumer Commodity—A material that is packaged and distributed in a form intended or suitable for retail sale for purposes of personal care or household use. This does not include material designed for military or industrial use that is not readily available from commercial retail sources.

Contamination—The presence of a radioactive substance on a surface in quantities in excess of 4Bq/ cm^2 for beta and gamma emitters and low toxicity alpha emitters or 0.4Bq/cm^2 for all other alpha emitters. Contamination exists in two phases:

1. Fixed radioactive contamination means radioactive contamination that cannot be removed from a surface during normal conditions of transport.
2. Nonfixed radioactive contamination means radioactive contamination that can be removed from a surface during normal conditions of transport.

Contingency—An emergency involving military forces caused by natural disasters, terrorists, subversives, or by required military operations. Due to the uncertainty of the situation,

contingencies require plans, rapid response, and special procedures to ensure the safety and readiness of personnel, installations, and equipment.

Conveyance—Any aircraft for the purposes of this manual.

Corrosive Material- see "Class 8"

Crate—An outer packaging with incomplete surfaces.

Criticality Safety Index (CSI)—A number (rounded up to the next tenth) which is used to provide control over the accumulation of packages overpacks or freight containers containing fissile material. The CSI for packages containing fissile material is determined in accordance with the instructions provided in 10 CFR Part 71. The CSI for an overpack, freight container, or consignment or consignment containing fissile material packages is the sum of the CSIs of all the fissile material packages contained within the overpack, freight container or consignment.

Cryogenic Liquid—A refrigerated liquefied gas having a boiling point colder than -90 degrees C (-130 degrees F) at 101.3 kPa (14.7 psi) absolute. A material meeting this definition is subject to requirements of Attachment 6, regardless of whether it also meets the definition of a nonflammable, nonpoisonous compressed gas. The material is partially described as "(* * *), refrigerated liquid (cryogenic liquid)" in Table A4.1., (with the asterisks replaced by the name of the gas).

Cultures or Stocks—Materials prepared and maintained for growth and storage and containing a Category A or B infectious substance.

Cylinder—A pressure vessel designed for pressures higher than 40 psia and having a circular cross section.

Dangerous Goods- Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the International Air Transport Association (IATA) Dangerous Goods Regulations, the International Civil Aviation Organization (ICAO) Technical Instructions, or the Items Listing (Table A4.1) in this manual. The term Dangerous Goods is synonymous with Hazardous Materials.

Dangerous When Wet Material- see "Class/Division 4.3"

Depleted Uranium—Uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.

Dermal Toxicity—A material with an LD_{50} for acute dermal toxicity of not more than 1000 mg/kg.

Design— The description of a special form Class 7 (radioactive) material, a package, packaging, or Low Specific Activity-III, that enables those items to be fully identified. The description may include specifications, engineering drawings, reports showing compliance with regulatory requirements, and other relevant documentation.

Diagnostic Specimens— Now called "Biological Substances, Category B." See Class 6.2 (Infectious Substances) for "Category B" definition.

Diluent Type A—An organic liquid that does not damage the thermal stability or increase the hazard of the organic peroxide and with a boiling point not less than 150 degrees C (302 degrees F) at atmospheric pressure. Type A diluents may be used for desensitizing all organic peroxides.

Diluent Type B—An organic liquid that does not damage the thermal stability or increase the hazard of the organic peroxide and with a boiling point, at atmospheric pressure, of less than 150 degrees C (302 degrees F) but at least 60 degrees C (140 degrees F), and a flash point greater than 5 degrees C (41 degrees F). Type B diluents are only used when specified in Table A9.1. The boiling point of a type B diluent must be at least 60 degrees C (140 degrees F) above the control temperature of the organic peroxide. **(T-0).** A type A diluent may be substituted for a type B diluent in equal concentration.

Division—A subdivision of a hazard class.

Domestic Addressee—The continental United States, Alaska, Hawaii, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Virgin Islands, American Samoa, Guam, and other US Territories.

Drum—A flat-ended or convex-ended cylindrical packaging made of metal, fiberboard, plastic, plywood, or other suitable materials. This definition also includes packagings of other shapes, (e.g., round taper-necked packagings or pail-shaped packagings).

Emergency—An emergency operation is the movement of personnel, equipment and supplies of an organization so they can respond to a non-combat (e.g., natural disaster) event requiring special and immediate action.

Enriched Uranium—Uranium containing more uranium-235 than 0.72%.

Exclusive Use— (Also referred to in other publications as "sole use" or "full load.") The sole use of a conveyance by a single consignor for which all initial, intermediate, and final loading and unloading are carried out according to the direction of the consignor or consignee. Specific instructions for maintaining exclusive use shipment controls must be issued in writing and included with the shipping paper information provided to the carrier by the consignor. **(T-0).**

Explosives- see "Class 1"

Filling Density—Designates the percent ratio of the weight of gas in a container to the weight of water that the container will hold at 16 degrees C (60 degrees F) (one pound of water equals 27.737 cubic inches at 16 degrees C).

Fissile Material—Is plutonium-239, plutonium-241, uranium-233, uranium-235, or any combination of these radionuclides. Fissile material means the fissile nuclides themselves, not material containing fissile nuclides, but does not include: Unirradiated natural uranium or depleted uranium; and natural uranium or depleted uranium that has been irradiated in thermal reactors only. Certain exceptions for fissile materials are provided in paragraph A3.3.7.3.4.2.

Flammable Liquid- see "Class 3"

Flammable Solid- see "Class/Division 4.1"

Flash Point—The minimum temperature at which a liquid within a test vessel gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Flash points are determined by the testing prescribed in 49 CFR Section 173.120.

Freight Container—A reusable transportation conveyance designed and constructed to permit loading, lifting, and movement of consolidated air eligible packages in unit form. Includes internal slingable units (ISUs), quadruple containers (QUADCONS), military vans (MILVANS), and similar military and commercial unit load devices authorized for air transportation.

Fuel Cell Cartridge—An article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell.

Genetically Modified Microorganisms (GMMOs) and Genetically Modified Organisms (GMOs)- Microorganisms and organisms in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally. GMMOs or GMOs which do not meet the definition of toxic or infectious substances are assigned to UN3245.

Graduated Dip-Stick- A device marked with lines for measuring that provide a positive means to accurately determine the level of fluid in a tank/container.

Gross Weight (Gross Mass):—

1. Weight of a vehicle, fully equipped and serviced for operation, including the weight of the fuel, lubricants, coolant, vehicle tools and spares, crew, personal equipment, and load.
2. Weight of a container, packaging or pallet including freight (contents) and binding.

Handlers—Personnel who only handle hazardous materials or hazardous materials documentation.

Hazard Class—The category of hazard assigned to a hazardous material based on defining criteria. Hazard classes are: explosives (Class 1), compressed gases (Class 2), flammable liquids (Class 3), flammable solids (Class 4), oxidizers and organic peroxides (Class 5), poisons and infectious substances (etiologic agents) (Class 6), radioactive materials (Class 7), corrosive materials (Class 8), and miscellaneous dangerous goods (Class 9).

Hazard Zone—One of four levels of hazard (hazard zones A through D) assigned to gases and one of two levels of hazard (hazard zones A and B) assigned to liquids that are poisonous by inhalation. A hazard zone is based on the LC50 value for acute inhalation toxicity of gases and vapors.

Hazardous Materials Inspectors— DOD personnel whose duties require them to review the integrity of the packaging and accuracy of documentation for all hazardous materials being transported within the Defense Transportation System (DTS) or by commercial carriers.

Hazardous Materials—A substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. §5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR Section 172.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR Part 173. May also be referred to as hazardous cargo. Term is synonymous with Dangerous Goods. **Note**: For identification, listing, and rules pertaining to Hazardous WASTE, refer to Title 40 CFR Parts 260 et seq., Hazardous Waste Management System, established by the EPA. This definition applies to

materials identified in this manual transported by military aircraft regardless of whether or not the materials are in commerce.

Hazardous Substance—A material, including its mixtures and solutions, that meets ALL of the following conditions:

1. Listed in Table A4.3. as originated in 49 CFR Section 172.101, Appendix A, Table 1, or a radionuclide listed in 49 CFR Section 172.101, Appendix A, Table 2.
2. In a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in Table A4.3.
3. When in a mixture or solution-

   3.1. For radionuclides, conforms to paragraph 7 of 49 CFR Section 172.101, Appendix A.

   3.2. For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material shown in the following table:

Table A1.1. Quantity Required to be a Hazardous Substance Mixture or Solution.

RQ	RQ	Concentration by Weight	
Pounds	**Kilograms**	**Percent**	**PPM**
5,000	2270	10	100,000
1,000	454	2	20,000
100	45.4	0.2	2,000
10	4.54	0.02	200
1	0.454	0.002	20

Note: This definition only applies to transportation-related activities as described in this manual and not in other contexts (other regulatory definitions of hazardous substances apply in other contexts).

Hazardous Waste—Any material that is subject to the hazardous waste MANIFEST requirements of the EPA specified in 40 CFR Part 262.

Inert Solid—A solid that does not damage the thermal stability or increase the hazard of the organic peroxide.

Infectious substances- See “Class/Division 6.2”

Inhabited Building Distance (IBD)—Distance in feet to be maintained between a potential explosion site and an inhabited building. IBD is expressed as a unitless number in parenthesis representing IBD in hundreds of feet e.g., (02) = 200 foot distance.

Inhalation Toxicity—

1. A dust or mist with a lethal concentration where 50 percent of the test subjects die (LC_{50}) from acute toxicity on inhalation of not more than 4 mg/L.
2. A material with a saturated vapor concentration in air at 20 degrees C (68 degrees F) of more than one-fifth of the LC_{50} acute toxicity on inhalation of vapors and with an LC_{50} for acute toxicity on inhalation of vapors of not more than 5000 mL/m3 (5000 parts per million (PPM)).
3. An irritating material, with properties similar to tear gas which causes extreme irritation, especially in confined spaces.

Inner Packaging—Packaging for which an outer packaging is required for transport. It does not include the inner receptacle of a composite packaging.

Inner Receptacle—Receptacle which requires an outer packaging in order to perform its containment function. The inner receptacle may be an inner packaging of a combination packaging or the inner receptacle of a composite packaging.

Jerrican—A metal or plastic packaging of rectangular or polygonal cross-section.

Kit—A set of materials or articles used for a specific purpose, shipped as a single item and assigned a single National Stock Number or Part Number by the Service/Agency Item Manager. A kit may include one or more different hazardous materials. Hazardous components may or may not be compatible but may be transported together as a kit.

Leakproof— designed to prevent any of the contents of material from escaping or anything unwanted from entering. May indicate ability to pass the leakproofness test required by 49 CFR Section 178.604.

Leak-tight— See leakproof

Limited Quantity of Radioactive Materials—A quantity of radioactive material which is not over the limits and conforms to the requirements specified in A11.5.

Liquefied Compressed Gas—A gas, which under charged pressure, is partially liquid at a temperature of 20 degrees C (68 degrees F).

Lithium Ion Cell or Battery- A rechargeable electrochemical cell or battery in which the positive and negative electrodes are both lithium compounds constructed with no metallic lithium in either electrode. A lithium ion polymer cell or battery that uses lithium ion chemistries, as described herein, is regulated as a lithium ion cell or battery.

Lithium Metal Cell or Battery means an electrochemical cell or battery utilizing lithium metal or lithium alloys as the anode. The lithium content of a lithium metal or lithium alloy cell or battery is measured when the cell or battery is in an undischarged state. The lithium content of a lithium metal or lithium alloy battery is the sum of the grams of lithium content contained in the component cells of the battery.

Low Specific Activity (LSA) Material— Radioactive material, which by its nature has a limited specific activity, or radioactive material for which limits of estimated average specific activity apply, is termed Low Specific Activity, or LSA material. External shielding material surrounding the LSA material is not considered in determining the estimated average specific activity. LSA

material is classed in one of three groups; LSA-I, LSA-II, and LSA-III (see attachment 3 for more information on these groups).

Low Dispersible Material— Either a solid radioactive material or a solid radioactive material in a sealed capsule that has limited dispensability and is not in powder form.

Magnetic Material—Any packaged material that has a magnetic field strength of 0.002 gauss or more measured at 2.1 m (7 ft) from any surface of the package.

Metal Hydride Storage System—A single complete hydrogen storage system that includes a receptacle, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transportation of hydrogen only.

Miscellaneous Hazardous Material- see "Class 9"

Multiple-Element Gas Container (MEGC)— Assemblies of DOT Specification and UN approved cylinders, tubes, or bundles of cylinders, interconnected by a manifold and assembled within a framework.

Natural Thorium—Thorium with the naturally occurring distribution of thorium isotopes (essentially 100 weight percent thorium-232).

Natural Uranium—Uranium containing the naturally occurring distribution of uranium isotopes (approximately 99.28% uranium-238 and 0.72% uranium-235 by mass).

Net Explosive Weight (NEW)—As it relates to this manual, NEW is the total weight, expressed in kilograms, of all explosive components. Refer to DESR 6055.9 or Service directives for definition of NEW used to determine Quantity Distance (QD) criteria.

Net Mass—The weight of the contents in a single packaging.

Non-Bulk Packaging—A maximum capacity of 450 L (119 gallons) or less as a receptacle for a liquid. A maximum net mass of 400 kg (882 pounds) or less and a maximum capacity of 450 L (119 gallons) or less as a receptacle for a solid. A water capacity of 454 kg (1000 pounds) or less as a receptacle for a gas. Regardless of the definition of bulk packaging, a maximum net mass of 400 kg (882 pounds) or less for a bag or a box conforming to the applicable requirements for specification packagings, including the maximum net mass limitations.

Nonfixed Radioactive Contamination—Radioactive contamination that can be readily removed from a surface by wiping with an absorbent material. Nonfixed (removable) radioactive contamination is not significant if it is not over the limits specified in A3.3.7.9.

Nonliquefied Compressed Gas—A gas, other than gas in solution, which under charged pressure is entirely gaseous at a temperature of 20 degrees C (68 degrees F).

Normal Form Radioactive Material—Radioactive material that has not been demonstrated to qualify as "special form radioactive material."

Oral Toxicity—Liquid with a lethal dose where 50 percent of the test subjects die (LD50) from acute oral toxicity of not more than 500 mg/kg or a solid with an LD50 for acute oral toxicity of not more than 200 mg/kg.

Organic Peroxides- see "Class/Division 5.2"

Other Form (radioactive material)—Radioactive material that does not meet the definition of Special Form radioactive material.

Outage or Ullage—The amount a packaging falls short of being liquid full, usually expressed in percent by volume.

Outer Packaging—The outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning, and any other components necessary to contain and protect the inner receptacles or inner packagings.

Overpack—A container or enclosure used to hold one or more air eligible packages to form a single unit for convenience of handling or storage during transportation. Freight containers are not considered overpacks.

Oxidizers- see "Class/Division 5.1"

Oxidizing Gas—A gas that may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does. Specifically, this means a pure gas or gas mixture with an oxidizing power greater than 23.5% as determined by a method specified in ISO 10156: or 10156–2.

Package—For radioactive materials, the packaging together with its radioactive contents as presented for transport.

Package or Outside Package—The packaging plus its contents.

Packaging(s)—A receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with the minimum packing requirements of this manual. For radioactive materials, the assembly of components necessary to ensure compliance with the packaging requirements of this manual. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The conveyance, tie down system, and auxiliary equipment may sometimes be designated as part of the packaging.

Packers—Personnel who package hazardous materials, but do not sign legally binding documents.

Packing Group—The degree of danger presented by the hazardous material.

1. Packing Group I indicates great danger.
2. Packing Group II indicates medium danger.
3. Packing Group III indicates minor danger.

Participant— Unit-move personnel directly attached to and moving with a deploying unit and their associated cargo as part of a tactical, contingency, or emergency operation or an exercise. Also, may be applied to non-channel airlift missions (e.g., Special Assignment Airlift Missions (SAAM) providing an exclusive service for movement of unit personnel and their associated cargo). Non-unit personnel are considered passengers.

Patient Specimens— Any human or animal material, including excreta, secreta, blood and its components, tissue, and tissue fluids being transported for diagnostic or investigational purposes, which have a minimal likelihood of containing pathogens in Category A or B. In determining whether a patient specimen has a minimal likelihood that pathogens are present, an element of professional judgment is required and determination made based upon the known medical history,

symptoms, and individual circumstances of the source human or animal, and endemic local conditions. Generally, these include samples being tested for other than the presence of a pathogen. Examples are cholesterol tests, drug tests, pregnancy.

Polymerizable Material—Any material that may polymerize (combine or react with itself) with an evolution of a dangerous quantity of heat or gas.

Poisonous/Toxic Material- see "Class/Division 6.1"

Pounds Per Square Inch (PSI)—The amount of force exerted on one square inch of the container or cylinder wall.

Pounds Per Square Inch Absolute (PSIA)—The absolute value of the force exerted on the container or cylinder wall. Absolute pressure is atmospheric pressure plus gauge pressure.

Pounds Per Square Inch Gauge (PSIG)—The gauge pressure is the pressure taken by a pressure gauge that represents the force exerted within the container or cylinder. Gauge pressure is always that pressure above atmospheric pressure.

Purged—As it relates to this manual, purged means void of hazardous material. Removal of liquid hazardous material by physical, chemical, or mechanical means as directed by a technical publication or directive. In the absence of a specific technical procedure, it is the shipper's determination based on the specific knowledge of the item to decide the appropriate preparation to ensure the item is void of hazardous material.

Preparers—DOD personnel whose duties require them to sign legally binding documentation certifying that hazardous materials are properly classified, packaged, marked and labeled, and in all respects meet the legal requirements for transportation within the DTS or by commercial carriers.

Primary Hazard—The hazard class of the material as assigned by Table A4.1.

Pyrophoric Material—This material is a liquid or solid that, even in small quantities and without an external ignition source, can ignite within five minutes of coming in contact with air. This material is the most likely to spontaneously combust.

Radiation Level—The radiation dose-equivalent rate expressed in millisievert per hour or mSv/h (millirem per hour or mrem/h). Neutron flux densities may be converted into radiation levels according to 49 CFR Paragraph 173.403(v).

Radioactive Contents—The radioactive material, together with any contaminated or activated solids, liquids or gases, within the package.

Radioactive Instrument or Article—Any manufactured instrument or article such as clock, electronic tube or apparatus, or a similar instrument or article having radioactive material in gaseous or non-dispersible solid form as a component part.

Radioactive Material— see "Class 7." Any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values in Table A.11.1.

Receptacle—A containment vessel for receiving and holding materials, including any means of closing.

Refrigerant Gas (Dispersant Gas)—This term applies to all flammable, nonflammable, nonpoisonous refrigerant gases, dispersant gases (fluorocarbons), or mixtures listed in Table A4.1.; or any other compressed gas meeting one of the following conditions:

1. A nonflammable mixture containing not less than 50 percent fluorocarbon content, having a vapor pressure not over 1792 kPa (260 psig) at 54 degrees C (130 degrees F).
2. A flammable mixture containing not less than 50 percent fluorocarbon content, not over 40 percent by weight of a flammable component, having a vapor pressure not over 1792 kPa (260 psig) at 54 degrees C (130 degrees F).

Regulated Medical Waste— Wastes derived from medicinal treatment of humans or animals or from bio-research, where there is low probability that infectious substances are present. Regulated medical waste known to contain an infectious substance in Category A must be classed as Division 6.2, described as an infectious substance, and assigned to UN2814 or UN2900, as appropriate. **(T-0).** Also known as Biomedical Waste, Clinical Waste, Medical Waste.

Reportable Quantity—The quantity of hazardous substance, as set forth in 40 CFR Section 302.4, the release of which requires notification pursuant to 40 CFR Part 302. **Note**: "Hazardous substance" for purposes of this requirement is defined in 40 CFR Section 300.5 (rather than the definition found in this manual).

Residue—The hazardous material remaining in a packaging after its contents have been removed to the maximum extent possible and before the packaging has been cleaned of hazardous material and purged to remove any hazardous vapors.

Safety Data Sheet—standard document that includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting hazardous chemicals.

Sealed Source—Radioactive source in a bonded cover, which prevents contact with and dispersion of the radioactive material under the conditions of use and wear for which it was designed.

Secondary Load—A distinct and separate hazardous item (other than an accessorial hazard) that is loaded and transported by a vehicle or on SE. May also be referred to as an accompanying load.

Self-Heating Material—Is a material that generates heat through a process of the gradual reaction of that substance with oxygen (in air). If the rate of heat production exceeds the rate of heat loss, then the temperature of the substance will rise which, after an induction time, may lead to self-ignition and combustion.

Self-Reactive Material—At normal or elevated temperatures, this material is liable to undergo a strong exothermic reaction. Exothermic reaction can be caused by excessively high transport temperatures or by contamination.

Service Focal Points—Personnel from each service or agency identified in DTR 4500.9-R, Chapter and this manual to jointly establish procedures and prepare any documentation necessary to implement this manual, handle HAZMAT inquiries and interpretations, and provide waivers to this manual when appropriate involving the transportation of HAZMAT.

Service Pressure—This term refers to the authorized pressure marking on the container. For example, for a cylinder marked "DOT 3A1800" the service pressure is 12410 kPa (1800 psi).

Sharps—Any object contaminated with a pathogen or that may become contaminated with a pathogen through handling or during transportation and also capable of cutting or penetrating skin or a packaging material. Sharps includes needles, syringes, scalpels, broken glass, culture slides, culture dishes, broken capillary tubes, broken rigid plastic, and exposed ends of dental wires. Sharps are assigned the proper shipping name of Regulated Medical Waste.

Shipping Activity—Unit, organization, or activity that originally offers a hazardous material into the Defense Transportation System.

Shipping Paper—The Air Cargo Manifest which includes minimum hazardous material information as required by DTR 4500.9-R. In the absence of an Air Cargo Manifest, the Shipper's Declaration for Dangerous Goods form may serve as a shipping paper.

Short circuit- A direct connection between positive and negative terminals of a cell or battery that provides an abnormally low resistance path for current flow.

Siftproof— A packaging impermeable to dry contents, including fine solid material produced during transportation.

Single Packaging—Nonbulk packaging other than a combination or composite packaging.

Sievert (Sv)—The standard unit of measure for radiation dose-equivalent. It is represented by the symbol "Sv." The sievert replaces the older unit for dose-equivalent, the "rem." One Sv is equal to 100 rem.

Special Approvals—An authorization issued by the appropriate authority for transport of certain hazardous materials. These approvals may be a Department of Transportation Special Permits (DOT-SPs), Competent Authority Approval (CAA), or a Certification of Equivalency (COE).

Special Form Radioactive Material—A single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule; has at least one dimension not less than 5 millimeters (0.197 inch); and meets the requirements of 49 CFR Section 173.469.

Specific Activity of a Radionuclide—The activity of the radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the activity per unit mass of the material.

Spontaneously Combustible Material- see "Class/Division 4.2"

Stabilized— The substance is in a condition that precludes uncontrolled reaction. This may be achieved by methods such as addition of an inhibiting chemical, degassing the substance to remove dissolved oxygen and inerting the air space in the package, or maintaining the substance under temperature control.

Strategic Airlift— A military mission to move personnel, equipment and supplies of an organization in support of United States' military objectives and interests, including supporting multi-national missions or alliances.

Strong Outer Packaging— The outermost enclosure that provides protection against the unintentional release of its contents under normal conditions of transportation, to include rough handling. It is a packaging that is sturdy, durable, and constructed so that it will retain its contents

under normal conditions of transportation. In addition, a strong outer packaging must meet the general packaging requirements in Attachment 3, but need not comply with UN specification packaging requirements.

Subsidiary hazard— An additional hazardous property of a material other than the primary hazard as identified in Table A4.1.

Supplementary Packaging— Additional packaging for hazardous materials that are contained in an inner packaging which does not in itself meet the pressure requirements identified in Attachment 3.

Surface Contaminated Object (SCO)— Surface Contaminated Object (SCO) means a solid object which is not itself radioactive but which has radioactive material distributed on its surfaces. SCO is classified in one of two groups: SCO-I and SCO-II. See Attachment 3 for more information.

Tactical—A tactical operation is the movement of personnel, equipment and supplies of an organization so they can accomplish their immediate military combat objective.

Technical Name—A recognized chemical name or microbiological name currently used in scientific and technical handbooks, journals, and texts. Generic descriptions are authorized provided they readily identify the general chemical or micro biological group.

Toxic/Poisonous Material- see "Class/Division 6.1"

Toxin—A Division 6.1 material from a plant, animal, or bacterial source. A toxin containing an infectious substance or a toxin contained in an infectious substance must be classed as Division 6.2, described as an infectious substance, and assigned to UN2814 or UN2900, as appropriate. **(T-0).**

Transport Index—A single number assigned to a package, overpack, or freight container to provide control over radiation exposure. The transportation index is the radiation level at 1 meter from the outer surface of a package.

Type A Package—A type A packaging (see definition for type A packaging) together with its limited radioactive contents. A type A package does not require competent authority approval since its contents are limited to A_1 or A_2.

Type A Packaging—A packaging designed to retain the integrity of containment and shielding required by this manual under normal conditions of transport, as demonstrated by the tests set forth in 49 CFR Sections 173.465 or 173.466.

Type B (M) Package—A type B packaging (see definition for type B packaging), together with its radioactive contents, that for international shipments requires multilateral approval of the package design and may require approval of the conditions of shipment. Type B(M) packages are those type B package designs that have a maximum normal operating pressure of more than 7 kg/cm^2 (100 $pounds/in^2$ gauge) or a relief device that allows the release of radioactive material to the environment under the hypothetical accident conditions specified in 10 CFR Part 71.

Type B (U) Package—A type B packaging (see definition for type B packaging), together with its radioactive contents, that for international shipments requires unilateral approval only of the package design and of any stowage provisions that may be necessary for heat dissipation.

Type B Package—A type B packaging (see definition for type B packaging) together with its radioactive contents is designed to transport greater than an A_1 or A_2 quantity of radioactive material.

Type B Packaging—Is a packaging designed to retain the integrity of containment and shielding required when subjected to the normal conditions of transport and hypothetical accident test conditions set forth in 10 CFR Part 71.

Uncompressed Gas—For the purposes of this manual, gas at a pressure not exceeding the ambient atmospheric pressure at the time and location the containment system is closed. All radioactive gases at pressures exceeding ambient atmospheric pressure are considered to be compressed.

Unirradiated Thorium—Thorium containing not more than 10^{-7} grams uranium-233 per gram of thorium-232.

Unirradiated Uranium—Uranium containing not more than 2 x 10^3Bq of plutonium per gram of uranium-235, not more than 9 x 10^6Bq of fission products per gram of uranium-235 and not more than 5 x 10^{-3} g of uranium-236 per gram of uranium-235.

UN Pressure Drum--A welded transportable pressure receptacle of a water capacity exceeding 150 L (39.6 gallons) and not more than 1,000 L (264.2 gallons) (e.g., cylindrical receptacles equipped with rolling hoops, spheres on skids).

UN Pressure Receptacle— A transportable pressure receptacle with a water capacity not exceeding 150 L that has been marked and certified as conforming to the applicable UN testing requirements. A UN cylinder, drum, or tube.

Used Health Care Product— A medical, diagnostic, or research device or piece of equipment or a personal care product contaminated with potentially infectious body fluids or materials other than a Category A infectious substance.

Vehicle—Any device or conveyance used for carrying or transporting passengers, equipment, or cargo. Includes, but not limited to automobiles, trucks, motorcycles, aircraft, boats, etc.

Waterproof—Impervious to water; constructed to be impermeable, impenetrable, and unaffected by water.

Water resistant— Having a degree of resistance to permeability by and damage caused by water in liquid form.

Watertight—See waterproof

Watt-hour (Wh)- A unit of energy equivalent to one watt (1 W) of work acting for one hour (1 h) of time. The Watt-hour rating of a lithium ion cell or battery is determined by multiplying the rated capacity of a cell or battery in ampere-hours, by its nominal voltage. Therefore, Watt-hour (Wh) = ampere-hour (Ah) × volts (V).

Wetted Explosive—This material, when dry, is a Class 1 material other than those of compatibility group A. Items in compatibility group A have been wetted with sufficient water, alcohol, or plasticizer to suppress explosive properties. Wetted explosives also includes items specifically authorized by name in Table A4.1. or which have been assigned a PSN and hazard class by the DOT.