

## Attachment 5

### CLASS 1--EXPLOSIVES AND AMMUNITION

**A5.1. General Requirements.** For military members, failure to obey the mandatory provisions from paragraphs A5.2. through A5.27. and any provisions of mandatory subparagraph(s) hereunder is a violation of Article 92, Uniform Code of Military Justice (UCMJ). Civilian employees who fail to obey the provisions from paragraph A5.2. through A5.27. and any provisions of mandatory subparagraph(s) hereunder are subject to administrative disciplinary action without regard to otherwise applicable criminal or civil sanctions. Personnel shall not deviate from these provisions and must select the correct inner/intermediate packaging and outer container as specified in each packaging paragraph. **(T-0)**. Not all packaging paragraphs are inclusive and packaging is based on the category of explosive or ammunition as identified in each paragraph or subparagraph. This attachment contains information concerning packaging and general handling instructions for Class 1 material. Unless otherwise noted, certify specification containers for Class 1 materials to PG II requirements. See Attachment 3 for additional information concerning Class 1 material.

**A5.2. Unpackaged Explosives.** Unless otherwise authorized in this manual, package all explosives according to Attachment 5. Explosives may only be removed from their required packaging to meet operational requirements of Chapter 3 under the following circumstances:

A5.2.1. On airdrop parachute platforms configured according to TO 13C7/FM 10-500 series publications.

A5.2.2. When stored in approved racks or containers, or secured in/on tactical equipment or vehicles as operational components according to technical orders or publications.

A5.2.3. When secured/restrained in freight containers according to service drawings approved for air movement.

**A5.3. Items requiring Special Approval.** Ship according to a Special Approval (includes CAA or COE) issued for the particular item. See paragraphs 2.5. and 2.6. for more information on CAAs and COEs. Comply with the following handling instructions only when shipping items containing a fuel that is corrosive or toxic.

A5.3.1. Handling Instructions. Exercise extreme caution in handling this item. Keep well ventilated, away from sparks, fire hazards, and oxidizing materials. Vapors are toxic when inhaled. Liquid is corrosive. Fuel in presence of an oxidizer is self-igniting and highly reactive. Approved protective clothing, gloves, safety goggles, and a positive pressure breathing apparatus must be available during handling of this material, and worn when handling leaking packages. **(T-0)**.

A5.3.2. Shipping Requirements. The following requirements apply:

A5.3.2.1. Load containers having an installed indicator in such a manner as to provide access to the indicator during flight. Inspect the indicator before aircraft loading, after aircraft loading, at cruise altitude, during flight every hour or as required by the applicable technical manual, as cargo tiedown is inspected, and after landing. The normal color of the indicator is white or off-white. The color will change to yellow if inhibited red fuming

nitric acid leak occurs. The color will change to black if an amine fuel mixture leak occurs. Changes are obvious and do not require technical escort personnel to monitor.

A5.3.2.2. Preplan containers that do not have an indicator installed under the same conditions as described in paragraph 2.8. The shipper must contact the carrier no less than 72 hours before movement. **(T-0)**. The shipper must also furnish the following:

A5.3.2.2.1. Protective clothing, gloves, and a positive pressure breathing apparatus for all personnel aboard the aircraft (see also paragraph 1.9.).

A5.3.2.2.2. Fume-detecting equipment.

A5.3.2.2.3. A qualified technical escort or courier with equipment to monitor the item for leaks and is prepared to take emergency in-flight action. **(T-0)**.

A5.3.3. Emergency Procedures. When a leak is detected, either by observation of the indicator or by monitoring equipment:

A5.3.3.1. Get personnel out of the cargo compartment.

A5.3.3.2. Alert pilot and crew.

A5.3.3.3. Depressurize cargo compartment and ventilate as soon as possible.

A5.3.3.4. All personnel go on 100 percent oxygen.

A5.3.3.5. Declare an in-flight emergency.

A5.3.3.6. Be prepared to jettison cargo if possible.

A5.3.3.7. Descend and land as soon as possible.

A5.3.3.8. Park aircraft in an isolated area.

A5.3.3.9. EOD personnel unload aircraft as soon as possible.

**A5.4. Barium Azide; Diazodinitrophenol, Wetted; Guanyl Nitrosaminoguanilydene Hydrazine, Wetted; Guanyl Nitrosaminoguanilyltetrazene, Wetted; Tetrazene, Wetted; Lead Azide, Wetted; Lead Mononitroresorcinate; Lead Styphnate, Wetted; Lead Trinitroresorcinate, Wetted; and Mercury Fulminate, Wetted, package as follows:**

A5.4.1. Fill the intermediate and outer packagings with an appropriate water-saturated material such as an anti-freeze solution or wetted cushioning. Outer packagings must be constructed and sealed to prevent evaporation of the wetting solution, (except UN0224 when shipped dry). **(T-0)**. Package in drums as follows:

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> plastic textile, plastic coated or lined rubber textile, or rubberized textile <i>or</i> <b>Receptacles:</b> wood	<b>Bags:</b> plastics, textile, plastic coated or lined rubber textile, or rubberized textile bag <i>or</i> <b>Receptacles:</b> plastics, metal, or wood	<b>Drums:</b> steel (1A1 or 1A2), other metal (1N1 or 1N2), or plastic (1H1 or 1H2)

A5.4.2. Inner packagings must not contain more than 50 g of explosive substance (quantity corresponding to dry substance); separate inner packagings from each other with dividing partitions; and do not partition within the outer packaging with more than 25 compartments. (T-0). Package in boxes as follows:

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> conductive rubber or conductive plastic <i>or</i> <b>Receptacles:</b> metal, wood conductive rubber or conductive plastic	<b>Dividing Partitions:</b> metal, wood, plastic, or fiberboard	<b>Boxes:</b> natural wood, sift-proof wall (4C2), plywood (4D), or reconstituted wood (4F)

A5.5. Powder Cake or Powder Paste, Wetted; or Nitrocellulose Plasticized. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> waterproof paper, plastic, or rubberized textile <i>or</i> <b>Sheets:</b> plastic or rubberized textile <i>or</i> <b>Receptacles:</b> wood <b>Note:</b> Inner packagings are not required for UN0159 when metal (1A1, 1A2, 1B1, 1B2, 1N1, or 1N2) or plastic (1H1 or 1H2) drums are used as the outer packaging	<b>Boxes:</b> steel (4A), aluminum (4B), other metal (4N), fiberboard (4G), ordinary wood (4C1), natural sift-proof wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastic (4H1), or solid plastic (4H2) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), other metal (1N1 or 1N2), plastic (1H1 or 1H2), plywood (1D), or fiberboard (1G)

**A5.6. Ammonium Picrate; Cyclotetramethylenetetranitramine, HMX, or Octogen Wetted; Cyclotrimethylenetrinitramine and Octogen, Mixtures, Wetted or Desensitized; Cyclotrimethylenetrinitramine, Cyclonite, Hexogen, or RDX Wetted; Cyclotrimethylenetrinitramine and Cyclotetramethylenetetranitramine, Mixtures, Wetted or Desensitized; Cyclotrimethylenetrinitramine and HMX Mixtures, Wetted or Desensitized; Dinitrophenol; Dinitroresorcinol; Dipicryl Sulfide; Hexolite or Hexotol; Hexotonal; Mannitol Hexanitate or Nitromannite, Wetted; Nitrocellulose; Nitrostarch; Nitro Urea; Nitroguanidine or Picrite Trinitrophenol or Picric Acid; Octolite or Octol; Pentolite; Pentaerythrite Tetranitrate or Pentaerythritol Tetranitrate or PETN, Wetted; or Pentaerythrite Tetranitrate or Pentaerythritol Tetranitrate or PETN, Desensitized; RDX and Cyclotetramethylenetetranitramine, Wetted or Desensitized; Trinitrobenzene; Trinitrobenzoic Acid; Trinitroresorcinol or Styphnic Acid; Trinitroresorcinol, Wetted; Trinitrotoluene or TNT; RDX and HMX Mixtures, Wetted or Desensitized Urea Nitrate. Packaging must be lead free for UN0004, 0076, 0078, 0154, 0219, and 0394. (T-0).**

A5.6.1. Wetted Solids. Package follows:

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> multiwall water resistant paper, plastic, textile, rubberized textile, woven plastic <b>or</b> <b>Receptacles:</b> metal, plastic, or wood	<b>Bags:</b> plastics, plastic coated or lined textile <b>or</b> <b>Receptacles:</b> metal, plastic, or wood <b>Note:</b> Intermediate packaging not required if leakproof drums are used as outer packaging or for UN0072 and UN0226.	<b>Boxes:</b> steel (4A), aluminum (4B), other metal (4N), ordinary natural wood, (4C1), sift proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastic, (4H1), solid plastic (4H2) <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), other metal (1N1 or 1N2), plywood (1D), fiber (1G), plastic (1H1 or 1H2)

A5.6.2. Dry Solids Other Than Powders. Package in bags, boxes, or drums as follows:

Inner packaging	Intermediate packaging	Outer packaging
<p><b>Bags:</b> kraft paper, multiwall water resistant paper, plastic, textile, rubberized plastic textile, woven plastic</p>		<p><b>Bags:</b> sift-proof woven plastic (5H2), water-resistant woven plastic (5H3), plastic film (5H4), sift-proof textile (5L2), water resistant textile (5L3), multiwall water resistant paper (5M2)</p> <p><i>or</i></p> <p><b>Boxes:</b> steel (4A), aluminum (4B), other metal (4N), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastic (4H1), solid plastic (4H2)</p> <p><i>or</i></p> <p><b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), other metal (1N1 or 1N2), plywood (1D), fiber (1G), plastic (1H1 or 1H2).</p> <p><b>Note:</b> For UN0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg.</p>

A5.6.3. Solid Dry Powders. Package in boxes or drums as follows (at least one of the packagings must be sift-proof) (T-0).:

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> multiwall water resistant paper, plastic, woven plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <b>Note:</b> Inner packagings are not required if drums are used as the outer packaging	<b>Bags:</b> multiwall water resistant paper, plastic, woven plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, or wood	<b>Boxes:</b> steel (4A), aluminum (4B), other metal (4N), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2) <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), other metal (1N1 or 1N2), plywood (1D), fiber (1G), plastic (1H1 or 1H2). <b>Note:</b> For UN0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg.

**A5.7. Ammonium Nitrate; Ammonium Perchlorate; Cyclotetramethylenetetranitramine, Octogen, or HMX Desensitized; Cyclotrimethylenetrinitramine, Cyclonite, Hexogen, or RDX Desensitized; Dinitroglycoluril or Dingu; Octonal; Tetranitroaniline; Trinitro-M-Cresol; Trinitroaniline or Picramide; Trinitroanisole; Trinitrobenzenesulphonic Acid; Trinitrochlorobenzene or Picryl Chloride; Trinitrofluorenone; Trinitronaphthalene; Trinitrophenetole; Trinitrotoluene and Trinitrobenzene Mixtures or TNT and Trinitrobenzene Mixtures or TNT and Hexanitrostilbene Mixtures or Trinitrotoluene and Hexanitrostilbene Mixtures; Trinitrotoluene Mixtures Containing Trinitrobenzene and Hexanitrostilbene or TNT Mixtures containing Trinitrobenzene and Hexanitrostilbene** package as follows. Packaging must be lead free for 0216, and 0386. (T-0).

A5.7.1. Dry Solids Other Than Powders. Package in bags, boxes, or drums as follows:

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> kraft paper, multiwall water resistant paper, plastic, textile, rubberized plastic textile, woven plastic <b>Note:</b> Inner packaging not required for UN0222.	<b>Bags (required for UN0150 only):</b> plastic, plastic coated or lined textile	<b>Bags:</b> sift-proof woven plastic (5H2), water-resistant woven plastic (5H3), plastic film (5H4), sift-proof textile (5L2), water resistant textile (5L3), multiwall water resistant paper (5M2) <i>or</i> <b>Boxes:</b> steel (4A), aluminum (4B), other metal (4N), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastic (4H1), solid plastic (4H2) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), other metal (1N1 or 1N2), plywood (1D), fiber (1G), plastic (1H1 or 1H2).

A5.7.2. Solid Dry Powders. Package in boxes or drums as follows (at least one of the packagings must be sift-proof) (T-0):

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> multiwall water resistant paper, plastic, woven plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <b>Note:</b> Inner packagings are not required if drums are used as the outer packaging	<b>Bags:</b> multiwall water resistant paper, plastic, woven plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, or wood	<b>Boxes:</b> steel (4A), aluminum (4B), other metal (4N), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2) <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), other metal (1N1 or 1N2), plywood (1D), fiber (1G), plastic (1H1 or 1H2).

**A5.8. Black Powder or Gunpowder; Black Powder, Compressed or Gunpowder, Compressed; Black Powder, in Pellets or Gunpowder, in Pellets, Flash Powder** package as follows. At least one of the packagings must be sift-proof. **(T-0)**. Do not package more than 50 g (1.8 oz) of flash powder (UN0094 or UN0305) in each inner packaging. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> paper, plastic, or rubberized textile <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Sheets:</b> Kraft paper or waxed paper (only authorized for UN0028).	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2) <b>Note:</b> Inner packaging not required for UN0027 packed in drums.

**A5.9. Deflagrating Metal Salts of Aromatic Nitroderivatives, N.O.S.; Dinitrophenolates; Dinitrosobenzene; Nitrocellulose, Wetted; 5-Mercaptotetrazol-1-Acetic Acid; Tetrazol-1-Acetic Acid; Powder, Smokeless; Propellant, Solid; Sodium Dinitro-O-Cresolate; Sodium Picramate; and Zirconium Picramate** package as follows. Packagings must be lead free for UN0077, 0132, 0234, 0235 and 0236. **(T-0)**. Use paragraph A5.9.1. for UN0342. Use paragraph A5.9.2. for UN0132, 0160, 0161, 0406, 0407, 0448, 0498, 0499, and 0509.

A5.9.1. Wetted Solids. Package in boxes or drums as follows:

Inner packaging	Intermediate packaging	Outer packaging
<b>Bags:</b> plastic, textile, woven plastic <i>or</i> <b>Receptacles:</b> metal, plastic, or wood <b>Note:</b> Inner packaging not required for UN0342 when packed in outer 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, or 1H2 drums.	<b>Bags:</b> plastic, plastic coated or lined textile <i>or</i> <b>Receptacles:</b> metal or plastic <b>Dividing Partitions:</b> wood <b>Note:</b> Intermediate packaging not required if packed in outer leakproof removable head drum.	<b>Boxes:</b> steel (4A), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1, or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)



A5.9.2. Dry Solids. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<p><b>Bags:</b> kraft paper, plastic, sift-proof woven plastic or textile</p> <p><i>or</i></p> <p><b>Receptacles:</b> fiberboard, metal, paper, plastic, wood, sift-proof woven plastic</p> <p><b>Note:</b> Inner packaging not required for UN0160 and UN0161 when packed in drums.</p>	<p><b>Boxes:</b> ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G)</p> <p><i>or</i></p> <p><b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G) plastic (1H1 or 1H2), other metal (1N1 or 1N2)</p> <p><b>Notes:</b> For UN0160 and 0161, 1A2, 1B2, and 1N2 drums must be constructed so that risk of explosion caused by increased internal pressure (from internal or external causes) is prevented. <b>(T-0).</b></p> <p>For UN0509, do not use metal packagings.</p>

**A5.10. Nitroglycerin, Desensitized; Nitroglycerin, Solution in Alcohol; and Propellant, Liquid** package as follows. Surround each inner packaging with sufficient amount of non-combustible absorbent material to absorb the entire contents. Cushion metal receptacles from each other in all directions. Liquid substances must not freeze at temperatures above -15 degrees C (5 degrees F). **(T-0)**. A composite packaging consisting of a plastic receptacle in a metal drum (6HA1) may be used instead of the inner and intermediate packagings. Package in boxes or drums as follows:

Inner packaging	Intermediate packaging	Outer packaging
<p><b>Receptacles:</b> plastic or wood</p> <p><b>Note:</b> Tape screw cap closures and do not exceed 5 liters capacity each when boxes are used as outer packagings (does not apply to UN0144). Metal receptacles are allowed for UN0144.</p>	<p><b>Bags:</b> plastic in metal receptacles</p> <p><i>or</i></p> <p><b>Drums:</b> metal</p> <p><i>or</i></p> <p><b>Receptacles:</b> wood</p> <p><b>Note:</b> Intermediate packaging not required for UN0144. For UN0075, 0143, 0495 and 0497 use bags as intermediate packaging when boxes are used as outer packaging.</p>	<p><b>Boxes:</b> ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F)</p> <p><b>Note:</b> Maximum net mass for box must not exceed 30 kg. <b>(T-0)</b>. Fiberboard (4G) boxes may be used for UN0144.</p> <p><i>or</i></p> <p><b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)</p> <p><b>Note:</b> Maximum net volume for drum must not exceed 120 liters. <b>(T-0)</b>.</p> <p>For UN0144, aluminum drums (1B1 and 1B2) and other metal drums (1N1 and 1N2) must not be used. <b>(T-0)</b>.</p>

**A5.11. Ammonium Nitrate-Fuel Oil Mixture; Explosive, Blasting, Type A (UN0081); Explosive, Blasting, Type B (UN0082); and Explosive, Blasting, Type E (UN0241); Explosive, Blasting, Type B (UN0331) or Agent Blasting, Type B; Explosive, Blasting, Type C (UN0083); Explosive, Blasting, Type D (UN0084) and Explosive, Blasting, Type E (UN0332) package as follows.**

**Package in boxes, drums, jerricans, or bags as follows:**

Inner packaging	Outer packaging
<p><b>Bags:</b> paper, water and oil resistant plastic, textile, plastic coated or lined woven plastic, sift-proof</p> <p><i>or</i></p> <p><b>Receptacles:</b> fiberboard, water resistant metal, plastic, sift-proof wood</p> <p><i>or</i></p> <p><b>Sheets:</b> water resistant paper, waxed paper, plastic</p> <p><b>Note:</b> Inner packaging not required for UN0082, UN0241, UN0331, and UN0332 if packed in a leakproof removable head outer drum.</p> <p><b>Note:</b> Inner packaging not required for UN0082, UN0241, UN0331, and UN0332 when the explosive is contained in a material that is impervious to liquid.</p> <p><b>Note:</b> Inner packaging not required for UN0081 when packed in rigid plastic that is impervious to liquid.</p> <p><b>Note:</b> Inner packaging not required for UN0331 when 5H2, 5H3 or 5H4 bags are outer packaging.</p>	<p><b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N)</p> <p><i>or</i></p> <p><b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)</p> <p><i>or</i></p> <p><b>Jerricans:</b> steel (3A1 or 3A2), plastic (3H1 or 3H2)</p> <p><i>or</i></p> <p><b>Bags:</b> woven plastic (5H1, 5H2, or 5H3), multiwall water resistant paper (5M2), plastic film (5H4), sift-proof textile (5L2), water resistant textile (5L3)</p> <p><b>Note:</b> Do not use any bags for UN0081.</p>

**A5.12. Ammunition, Illuminating; Ammunition, Incendiary; Ammunition, Incendiary, White Phosphorus; Ammunition, Practice; Ammunition, Proof; Ammunition, Smoke; Ammunition, Smoke, White Phosphorus; Ammunition, Tear-Producing; Bombs; Bombs, Photo-Flash; Cartridges, Depth; Cartridges for Weapons; Cartridges for Weapons, Blank; Cartridges for Weapons, Inert Projectile; Cartridges, Small Arms; Cartridges, Small Arms, Blank; Charges, Bursting, Charges, Demolition; Plastic Bonded; Charges, Propelling for Cannon; Mines; Projectiles; Rocket Motors; Rockets; Rockets, Line-Throwing; Torpedoes; Warheads, Rocket; and Warheads, Torpedo package as follows:**

## A5.12.1. Package in boxes or drums as follows:

Inner packaging	Outer packaging
Inner packaging not required	<p><b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastic (4H1), solid plastic (4H2), other metal (4N)</p> <p><i>or</i></p> <p><b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G) plastic (1H1 or 1H2), other metal (1N1 or 1N2)</p> <p><i>or</i></p> <p><b>Large Packagings:</b> steel (50A), aluminum (50B), natural wood (50C), plywood (50D), reconstituted wood (50F), rigid fiberboard (50G), rigid plastic (50H), other metal (50N)</p>

A5.12.2. Large and Robust Articles of UN numbers UN0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0238, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0459 and 0488. Large and robust articles without their means of initiation, or with their means of initiation containing at least two effective protective features, may be carried unpacked provided that a negative result was obtained in Test Series 4 of the UN Manual of Tests and Criteria on an unpackaged article. When such articles have propelling charges or are self-propelled, protect their ignition systems against stimuli encountered during normal conditions of transport. Ship such articles in DOD-approved containers, crates, cradles, or other suitable handling, storage, or launching devices which have been tested to show that they will not become loose during normal conditions of transport.

**A5.13. Detonators, Electric** package as follows: Inner packagings are not required when detonators are packed in pasteboard tubes, or when their leg wires are wound on spools with the caps either placed inside the spool or securely taped to the wire on the spool restricting movement of the caps and protecting from impact. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> paper, plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Reels</b>	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.14. Detonators, Non-electric and Detonator Assemblies, Non-electric** package as follows: For detonators assemblies (UN0360, 0361, 0500), detonators are not required to be attached to the safety fuse, metal clad mild detonating cord, detonating cord, or shock tube. Inner packagings are not required if the packing configuration restricts free movement of the caps and protects them from impact forces. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> paper, plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Reels</b> <b>Note:</b> For UN0029, UN0267, and UN0455, do not use bags and reels as inner packagings.	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.15. Boosters and Charges, Supplementary Explosive** package as follows:

A5.15.1. Package articles consisting of closed metal, plastic or fiberboard casing in boxes as follows:

Inner packaging	Outer packaging
Inner packaging not required	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N)

A5.15.2. Package articles without closed casings in combination packages as follows:

Inner packaging	Outer packaging
<b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Sheets:</b> paper, plastic	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N)

**A5.16. Boosters with Detonator; Bursters; Detonators for Ammunition; Grenades, Empty Primed; Primers, Cap Type; Primers, Tubular; and Tracers for Ammunition** package in boxes as follows:

Inner packaging	Intermediate packaging	Outer packaging
<b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Trays (fitted with dividing partitions):</b> fiberboard, plastics, wood. <b>Note:</b> Do not use trays for UN0043, 0212, 0225, 0268 or 0306.	<b>Receptacles:</b> fiberboard, metal, plastic, wood. <b>Note:</b> Intermediate packaging only required when trays are used as inner packaging.	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N)

**A5.17. Cutters, Cable, Explosive; Cartridges, Power Device; Cartridges, Oil Well; Fracturing Devices, Explosive; Release Devices, Explosive; Rivets, Explosive; and Sounding Devices, Explosive** package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> water resistant <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Sheets:</b> corrugated fiberboard <i>or</i> <b>Tubes:</b> fiberboard	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastics (4H1), solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiberboard (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.18. Air Bag Inflators; Air Bag Modules; Articles, Pyrotechnic; Cartridges, Flash; Cartridges, Signal; Fireworks; Flares, Aerial; Flares, Surface; Seat-Belt Pretensioners; Signal Devices, Hand; Signals, Distress; Signals, Smoke; and Signals, Railway Track, Explosive package in boxes or drums as follows:**

Inner packaging	Outer packaging
<b>Bags:</b> paper, plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Sheets:</b> paper, plastic	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastics (4H1), and solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.19. Cases, Cartridge, Empty with Primer; and Cases, Combustible, Empty, without Primer package in boxes or drums as follows:**

Inner packaging	Outer packaging
<b>Bags:</b> plastic, textile <i>or</i> <b>Boxes:</b> fiberboard, plastic, wood <i>or</i> <b>Dividing partitions:</b> within outer packaging	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.20. Charges, Shaped; or charges, Explosive, Commercial package in boxes as follows.** For UN0059, 0439, 0440, and 0441, when shaped charges are packed singly, the conical cavity must face downwards and the package marked with orientation markings meeting the requirements of 49 CFR Subparagraph 172.312(a)(2). **(T-0).** When shaped charges are packed in pairs, the conical cavities must face inwards. **(T-0).** Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> plastic <i>or</i> <b>Boxes:</b> fiberboard, wood <i>or</i> <b>Tubes:</b> fiberboard, metal, plastic <i>or</i> <b>Dividing partitions</b> within outer packaging	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.21. Charges, Shaped, Flexible, Linear** package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> plastic <b>Note:</b> If ends of articles are sealed, inner packaging is not required.	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.22. Cord or Fuse, Detonating; Cord or Fuse, Detonating, Mild Effect** package as follows.  
Seal ends of the detonating cord and fasten securely. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Sheets:</b> paper, plastic <i>or</i> <b>Reels</b> <b>Note:</b> For UN0065, 0104, 0289, 0290 the ends of the detonating cord are not required to be sealed provided the inner packaging containing the detonating cord consists of a static-resistant plastic bag of at least 3 mil thickness and the bag is securely closed. <b>Note:</b> Inner packaging is not required for UN0065 and UN0289 when securely fastened in coils.	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)



**A5.23. Cord, Igniter; Fuse, Igniter; Fuse, Non-detonating; or Fuse, Safety** package as follows. For UN0101, do not use steel, aluminum, or other metal packaging and the packaging must be sift-proof unless the fuse is covered by a paper tube and both ends of tube are covered with removable caps. **(T-0)**. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> plastic <i>or</i> <b>Sheets:</b> kraft paper, plastic <i>or</i> <b>Receptacles:</b> wood <b>Note:</b> Inner packaging not required for UN0105 if ends are sealed.	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.24. Fuzes, Detonating; Fuzes, Igniting; Grenades; and Grenades, Practice** package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Trays (individual partitions):</b> plastic wood <i>or</i> <b>Dividing partitions</b> in the outer packaging	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.25. Igniters or Lighters, Fuse** package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> paper, plastic <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Sheets:</b> paper <i>or</i> <b>Trays (individual partitions):</b> plastic	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

**A5.26. Charges, Propelling** package as follows. Ensure metal packagings are constructed so that risk of explosion, by reason of increase in internal pressure (from internal or external causes), is prevented.

A5.26.1. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Bags:</b> kraft paper, plastic, textile, rubberized textile <i>or</i> <b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Trays (individual partitions):</b> plastic, wood	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastics (4H2), other metal (4N) <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), other metal (1N1 or 1N2)

A5.26.2. Package in composite packaging as follows:

Inner packaging	Outer packaging
Inner packaging not required with use of 6HH2 package.	Plastic receptacle with outer solid box (6HH2)

**A5.27. Contrivances, Water-Activated** package as follows:

A5.27.1. Package in boxes or drums as follows:

Inner packaging	Outer packaging
<b>Receptacles:</b> fiberboard, metal, plastic, wood <i>or</i> <b>Dividing partitions</b> in the outer packaging	<b>Boxes:</b> steel (4A), aluminum (4B), ordinary natural wood (4C1) with metal liner, plywood (4D) with metal liner, reconstituted wood (4F) with metal liner, expanded plastic (4H1), solid plastic (4H2), other metal (4N). <i>or</i> <b>Drums:</b> steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), plastic (1H1 or 1H2), other metal (1N1 or 1N2) <b>Note:</b> Seal packagings against the ingress of water.

A5.27.2. Package Large and Robust Articles as follows. Large and robust articles without their means of initiation, or with their means of initiation containing at least two effective protective features, may be carried unpacked provided that a negative result was obtained in Test Series 4 of the UN Manual of Tests and Criteria on an unpackaged article. When such articles have propelling charges or are self-propelled, protect their ignition systems against stimuli encountered during normal conditions of transport. Such articles will be in DOD-approved containers, crates, cradles, or other suitable handling, storage, or launching devices which have been tested to show that they will not become loose during normal conditions of transport. Articles must contain at least two independent features which prevent the ingress of water. **(T-0).**