Attachment 8

CLASS 4--FLAMMABLE SOLIDS, SPONTANEOUSLY COMBUSTIBLE MATERIALS, AND DANGEROUS WHEN WET MATERIALS

A8.1. General Requirements. For military members, failure to obey the mandatory provisions from paragraphs A8.2. through A8.21. 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 A8.2. through A8.21. 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 fully comply with the inner/receptacle and outer container options as mandated per each packaging paragraph. **(T-0)**. Not all packaging paragraphs are inclusive and packaging container selection is based on the type of flammable solid type and quantity shipped. This attachment contains information concerning the packaging and general handling instructions for Class 4.1 (flammable solids), Class 4.2 (spontaneously combustible material), and Class 4.3 (dangerous when wet material). See Attachment 3 for other details concerning Class 4 material.

A8.2. Packaging for Class 4 Liquids is as follows:

A8.2.1. Package in combination packagings with outer drums, barrels, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Receptacles: glass, earthenware, plastic, metal, or glass ampoules **Note:** For PG I material inner packagings packed in a rigid and leakproof receptacle or intermediate packaging containing sufficient absorbent material to absorb the entire contents of all inner packagings before packing the inner packaging(s) in the outer package. **Note:** Ensure inner packaging or receptacle closures of combination packages containing liquids are held securely, tightly and effectively in place by secondary means. See A20.3.	**Drums:** steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), or other metal (1N1 or 1N2) ***or*** **Barrel:** wood (2C2) **Note:** Not authorized for PG I material. ***or*** **Jerrican:** steel (3A1 or 3A2), aluminum (3B1 or 3B2), or plastic (3H1 or 3H2) ***or*** **Boxes:** steel (4A), aluminum (4B), natural wood (4C1 or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), plastic (4H1 or 4H2), or other metal (4N)

A8.2.2. Package in single packaging drums, jerricans, or barrels as follows:

Inner packaging	Outer packaging
Not required	**Drums:** steel (1A1 or 1A2), aluminum (1B1 or 1B2), fiber (1G) with liner, plastic (1H1 or 1H2), or metal other than steel or aluminum (1N1 or 1N2) **Note:** Fiber drum (1G) not authorized for PG I materials. ***or*** **Jerricans:** steel (3A1 or 3A2), aluminum (3B1 or 3B2), or plastic (3H1 or 3H2) ***or*** **Barrel:** wood (2C1) **Note:** Wooden barrel (2C1) not authorized for PG I materials.

A8.2.3. Package in composite packagings with plastic inner receptacles as follows:

Inner receptacle	Outer packaging
plastic	**Drum:** steel (6HA1), aluminum (6HB1), plywood (6HD1), fiber (6HG1), or plastic drum (6HH1) **Note:** Plywood drum (6HD1) not authorized for PG I materials ***or*** **Box:** steel (6HA2), aluminum (6HB2), wooden (6HC), plywood (6HD2), or fiberboard (6HG2)

A8.2.4. Package in composite packagings with glass, porcelain or stoneware inner receptacles as follows:

Inner receptacle	Outer packaging
glass, porcelain or stoneware	**Drum:** steel (6PA1), aluminum (6PB1), plywood (6PD1), wickerwork hamper (6PD2), or fiber (6PG1) **Note:** Plywood drum or wickerwork hamper (6PD1 or 6PD2) not authorized for PG I material. ***or*** **Box:** steel (6PA2), aluminum (6PB2), wooden (6PC), or fiberboard (6PG2) solid or expanded plastic packaging (6PH1 or 6PH2)

A8.2.5. DOT Cylinders. DOT specification cylinders as prescribed for any compressed gas, except acetylene (DOT8, 8AL) and DOT 3HT.

A8.3. Packaging for Class 4 Solids is as follows: See also A3.3.4.2.

A8.3.1. Package in combination packagings with outer drums, barrels, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Receptacles: glass or earthenware, plastic, metal or glass ampoules	**Drums:** steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2), or other metal (1N1 or 1N2) ***or*** **Barrel:** wood (2C2) ***or*** **Jerrican:** steel (3A1 or 3A2), aluminum (3B1 or 3B2), or plastic (3H1 or 3H2) ***or*** **Boxes:** steel (4A), aluminum (4B), natural wood (4C1 or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), solid plastic (4H2), or other metal (4N)

A8.3.2. Package in single packaging drums, jerricans, or barrels as follows:

Inner packaging	Outer packaging
Not required	**Drums:** steel (1A1or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), plastic (1H1 or 1H2) metal other than steel or aluminum (1N1 or 1N2) **Note:** Plywood (1D) not authorized for PG I material. ***or*** **Barrel:** wood (2C1 or 2C2) **Note:** Wooden barrels 2C1 or 2C2 not authorized for PG I material. ***or*** **Jerrican:** steel (3A1 or 3A2), aluminum (3B1 or 3B2), or plastic (3H1 or 3H2) ***or*** **Boxes:** steel (4A), steel (4A) with liner, aluminum (4B), aluminum (4B) with liner, natural wood (4C1 or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G) plastic (4H1 or 4H2) or metal other than steel or other metal (4N) Note: Steel boxes(4A) and aluminum boxes (4B) require liners for PG I material. Natural wood (4C1)), plywood (4D), reconstituted

	wood (4F), or fiberboard (4G) boxes not authorized for PG I material ***or*** **Bags:** woven plastic (5H1, 5H2, or 5H3); plastic film (5H4); textile (5L1, 5L2, or 5L3); paper, multiwall, water-resistant (5M2) **Note:** Bags not authorized for PG I material.

A8.3.3. Package in composite packagings with plastic inner receptacles as follows:

Inner receptacle	**Outer packaging**
Plastic	**Drum:** steel (6HA1), aluminum (6HB1), plywood (6HD1), fiber (6HG1),or plastic (6HH1)drum ***or*** **Box:** steel (6HA2), aluminum (6HB2), wooden (6HC), plywood (6HD2), or fiberboard (6HG2) **Note:** Plastic receptacles in outer boxs are not authorized for PG I material.

A8.3.4. Package in composite packagings with glass, porcelain or stoneware inner receptacles as follows:

Inner receptacle	**Outer packaging**
Glass, porcelain or stoneware	**Drum:** steel (6PA1), aluminum (6PB1), plywood (6PD1), or fiber (6PG1) ***or*** **Box:** steel (6PA2), aluminum (6PB2), wooden (6PC), or fiberboard (6PG2) ***or*** expanded or solid plastic packaging (6PH1 or 6PH2) **Note:** Expanded or solid plastic packagings are not authorized for PG I material.

A8.3.5. DOT Cylinders. DOT specification cylinders as prescribed for any compressed gas, except DOT 8, 8AL, and DOT 3HT.

A8.4. Class 4 Materials requiring CAA. Prepare Class 4 materials referenced in Table A4.1. to this paragraph, according to a competent authority approval (CAA). Packaging must be in compliance with the CAA. **(T-0)**. See paragraph 2.5. for more information on CAAs.

A8.5. Package Pyrophoric Liquid Materials (Class 4.2) as follows: See also A3.3.4.2.

A8.5.1. Steel or Nickel Cylinders. Specification steel or nickel cylinders prescribed for any compressed gas except acetylene having a minimum design pressure of 1206 kPa (175 psig);

for UN3194 inorganic pyrophoric liquids DOT 3AL cylinders constructed of aluminum alloy 6061-T6 with a minimum marked service pressure of 1,800 psig and a maximum water capacity of 49 liters (13 gal) may be used. The following applies:

A8.5.1.1. Ensure cylinders with valves are equipped with steel valve protection caps or collars, or

A8.5.1.2. Pack in wooden box (4C1, 4C2, 4D, or 4F), fiberboard box (4G), or plastic box (4H1 or 4H2). Secure cylinders to prevent movement in the box and when offered for transportation, load so that the pressure relief devices remain in the vapor space of the cylinder.

A8.5.2. Steel boxes (4A), aluminum boxes (4B), wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G), or metal boxes, other than steel or aluminum (4N); steel drums (1A1 or 1A2), aluminum drums (1B1 or 1B2), plywood drums (1D), fiber drums (1G); or metal drums, other than steel or aluminum (1N1 or 1N2); or steel jerricans (3A1 or 3A2), or aluminum jerricans (3B1 or 3B2); with not more than four strong, tight metal cans with inner receptacles of glass or metal. Inner receptacles may not be over 1 L (0.3 gallons) capacity each. Inner receptacles require a positive screw cap closure with gasket. Cushion inner packagings on all sides with dry, incombustible absorbent material in a quantity sufficient to absorb the entire contents. Close the strong, tight metal cans by positive means, not by friction.

A8.5.3. Steel drums (1A1 or 1A2), aluminum drums (1B1 or 1B2), fiber drums (1G), or metal drums, other than steel or aluminum (1N1 or 1N2); or steel jerricans (3A1 or 3A2), or aluminum jerricans (3B1 or 3B2); or steel boxes (4A), aluminum boxes (4B) or metal boxes, other than steel or aluminum (4N) not exceeding 220 L (58 gallons) capacity each with inner metal cans not over 4 L (1 gallon) capacity each, closed by positive means, not by friction.

A8.5.4 Combination packagings consisting of the following:

A8.5.4.1. Inner packaging. A 10 liter or 20 liter UN1A1 drum fabricated from stainless steel which has been certified to PG I having a minimum wall thickness of 1.9 mm; 4 each National Pipe Thread (NPT) or Vacuum Coupling Radiation (VCR) openings, each with a diameter of 6.3 mm; and, be fitted on the upper head with a center opening with a maximum diameter of 68.3 mm and the opening sealed with a threaded closure fabricated from 316 stainless steel. No more than two (2) inner drums may be placed inside the outer drum.

A8.5.4.2. Outer packaging. A UN1A2 drum certified to the PG I performance level and a capacity not to exceed 208 L (55 gal). The drum must have a minimum wall thickness of 1.0 mm and the top head must be closed with a steel closing ring with a minimum thickness of 2.4 mm. **(T-0)**. No more than two (2) inner drums described in paragraph A8.5.4.1. may be placed inside the outer drum.

A8.6. Package Diphenyloxide-4, 4-Disulphohydrazide; N, N Dinitroso-N, N Dimethyl Teraphthlamide (not more than 72 percent as a paste) as follows: Temperature controls are not required. Maximum gross weight may not exceed 110 pounds (50 kg). Package in drums as follows:

Inner packaging	Outer packaging
Not required	**Drum:** fiber (1G) with a plastic liner or internal coating; or sift-proof fiber (1G)

A8.7. Package 1,1 Azodi-(Hexahydrobenzonitrile); Benzene Sulfohydrazide; Benzene-1,3-Disulfohydrazide (not more than 52 percent as a paste); N,N-Dinitrosopentamethylenetetramine (not more than 82 percent with phlegmatizer) as follows: Temperature controls are not required.

A8.7.1. Package in drums as follows:

Inner packaging	Outer packaging
Not required	**Drum:** fiber (1G) with a plastic liner or internal coating; or sift-proof fiber (1G) **Note:** Maximum gross weight is 50 kg (110 pounds).

A8.7.2. Package in boxes as follows:

Inner packaging	Outer packaging
Receptacle: single plastic bag	**Box:** fiberboard (4G) **Note:** Maximum gross weight is 50 kg (110 pounds).

A8.7.3. Package in boxes as follows:

Inner packaging	Outer packaging
Receptacles: plastic boxes, plastic bottles, or jars **Note:** Maximum weight of inner packaging is 5 kg (11 pounds).	**Box:** fiberboard (4G) **Note:** Maximum gross weight is 40 kg (88 pounds).

A8.8. Package 3-Chloro-4-Diethylaminobenzenediazonium Zinc Chloride; 4-Dipropylaminobenzenediazonium Zinc Chloride; Sodium 2-Diazo-1Naphthol-4-Sulphonate; Sodium 2-Diazo-1-Naphthol-5-Sulphonate as follows: Temperature controls are not required.

A8.8.1. Package in drums as follows:

Inner packaging	Outer packaging
Not required	**Drum:** fiber (1G) with a plastic liner or internal coating **Note:** Maximum gross weight is 50 kg (110 pounds).

A8.8.2. Package in drums as follows:

Inner packaging	Outer packaging
Receptacle: plastic bag	**Drums:** steel removable head (1A2) or an aluminum removable head (1B2) **Note:** Maximum gross weight is 55 kg (121 pounds).

A8.9. Package 2-Diazo-1-Naphthol-4-Sulphochloride and 2-Diazo-1-Naphhthol-5-Sulphochloride in drums as follows: Temperature controls are not required.

Inner packaging	Outer packaging
Not required	**Drum:** fiber (1G) with plastic liner or internal coating **Note:** Maximum gross weight is 50 kg (110 pounds).

A8.10. Package Barium Azide, Wetted (with not less than 50 percent water by mass) as follows: Pack barium azide, wetted (with not less than 50 percent water by mass) in the following packaging. Inner glass receptacles may not be over 0.5 kg (1.1 pounds) capacity each. Inner receptacles require rubber stoppers wire-tied for securement. If transportation is to take place when freezing weather is possible, ensure a suitable antifreeze solution is used to prevent freezing. Package in boxes or drums as follows:

Inner packaging	Outer packaging
Receptacles: glass	**Boxes:** wood (4C1, 4C2, 4D, or 4F) ***or*** **Drum:** fiber (1G)

A8.11. Package Calcium Pyrophoric; Magnesium Diphenyl; Metal Catalyst, Dry; Pyrophoric Metals, N.O.S. and Pyrophoric Solids, N.O.S. as follows:

A8.11.1. Inner receptacles with positive (not friction) means of closure. Inner metal receptacles may not contain more than 15 kg (33 pounds) each. Package in boxes as follows:

Inner packaging	Outer packaging
Receptacles: metal	**Boxes:** wood (4C1, 4C2, 4D, or 4F)

A8.11.2. Inner receptacles with positive (not friction) means of closure. Inner metal receptacles may not contain more than 7.5 kg (17 pounds) each. Package in boxes as follows:

Inner packaging	Outer packaging
Receptacles: metal	**Box:** fiberboard (4G)

A8.11.3. Inner receptacles with positive (not friction) means of closure. Inner metal receptacles may not contain more than 15 kg (33 pounds) each. Package in drums as follows:

Inner packaging	Outer packaging
Receptacles: metal	**Drums:** fiber (1G) or plywood (1D)

A8.11.4. Package in drums as follows:

Inner packaging	Outer packaging
Receptacles: metal, which have a positive (not friction) means of closure (not required for metal drums) **Note:** Inner receptacles may not contain more than 15 kg (33 pounds) each.	**Drum:** steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G), or other metal (1N1 or 1N2) **Note:** For metal drums, gross weight may not exceed 150 kg (331 pounds) each.

A8.11.5. Package in boxes as follows:

Inner packaging	Outer packaging
Not required	**Boxes:** steel (4A), aluminum (4B), or other metal (4N) **Note:** May not contain more than 15 kg (33 pounds) each.

A8.12. Package Films, Nitrocellulose Base (gelatin coated [except scrap]) as follows: Each reel in a tightly closed inner packaging with its cover securely held in place with adhesive tape or adhesive paper. Package in drums, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Receptacles: metal can, polypropylene canister, or strong fiberboard	**Drums:** steel (1A2), aluminum (1B2), or plywood (1D), fiber (1G), or other metal (4A2) **Note:** Fiber drums (1G) may only be used for film not exceeding 600 m (1969 feet). ***or*** **Jerrican:** steel (3A2), or aluminum (3B2) ***or*** **Boxes:** steel (4A), aluminum (4B), wood (4C1 or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), or other metal (4N) **Note:** Fiberboard (4G) may only be used for film not exceeding 600 m (1969 feet).

A8.13. Package Fusees (railway or highway) as follows**:**

A8.13.1. General Requirements. Fusees that are equipped with spikes having reinforced ends to prevent penetration of the spikes through the outer packaging. Also, ensure the packages are capable of passing at least one drop test with the spike in a downward position.

A8.13.2. Package in drums, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Not required	**Drums:** steel (1A2), plywood (1D), or fiber (1G) ***or*** **Jerrican:** steel (3A2) ***or*** **Boxes:** wood (4C1, 4C2), plywood (4D), reconstituted (4F), fiberboard (4G)

A8.14. Package Matches, Fusee; Matches, Safety (book, card, or strike-on-box); Matches Strike-Anywhere, and Matches, Wax Vesta as follows: Matches must be of a type that will not ignite spontaneously when subjected to a temperature of 93.3 degrees C (200 degrees F) for 8 consecutive hours in a properly conducted laboratory test. **(T-0)**.

A8.14.1. Do not pack matches, strike-anywhere, in the same outer packaging with any other article except safety matches or wax vesta matches. Package safety matches or wax vesta matches in separate inside containers. Each inside packaging may not contain over 700 matches. Gross weight may not be over 30 kg (66 pounds) for fiberboard boxes or 45.4 kg (100 pounds) for all other outer packagings.

A8.14.2. Do not pack fusee matches, in the same outer packaging with any other article except safety matches or wax vesta matches. Package safety matches or wax vesta matches in separate inside containers. Each inside packaging may not contain over 700 matches. Gross weight may not be over 30 kg (66 pounds) for fiberboard boxes or 45.4 kg (100 pounds) for all other outer packagings.

A8.14.3. Tightly pack safety matches (strike-on-box, book, and card) or wax vesta matches in securely closed inside containers then packed in an outer packaging. Safety matches may be packed in the same outer packaging with non hazardous materials.

A8.14.4. Package in drums, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Receptacles: securely closed chipboard, fiberboard, wood, or metal	**Drums:** steel (1A1 or 1A2), aluminum (1B1 or 1B2), plywood (1D), fiber (1G) or other metal (1N1 or 1N2) ***or*** **Jerrican:** steel (3A1 or 3A2), aluminum (3B1 or 3B2) ***or*** **Boxes:** steel (4A), aluminum (4B), wood (4C1, 4C2), plywood (4D), reconstituted (4F), fiberboard (4G) or other metal (4N)

A8.15. UN3541, Articles containing flammable solid N.O.S. are authorized when classified per paragraph A4.2.3., maximum net quantity per package 50 kg, when packaged, or unpackaged as follows:

A8.15.1. When packaged, packagings meeting Packing Group II performance is required.

A8.15.1.1. Pack articles to prevent movement and inadvertent operation during normal conditions of transport.

A8.15.1.2. Where there is no receptacle within the article, ensure the article fully encloses the dangerous goods and prevent their release under normal conditions of transport.

Inner packaging	Outer packaging
Receptacles: constructed of suitable materials and secured in the article in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the article itself or the outer packaging.	**Drums:** removable head steel (1A2), removable head aluminum (1B2), removable head metal other than steel or aluminum (1N2), plywood (1D), fiber (1G), or removable head plastic (1H2) ***or*** **Boxes:** steel (4A), aluminum (4B), ordinary natural wood (4C1), sift-proof natural wood (4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), expanded plastic (4H1), or solid plastic (4H2), other metal (4N) ***or*** **Jerricans:** removable head steel (3A2), plastic removable head (3H2), or aluminum removable head (3B2)

A8.15.2. Robust articles.

A8.15.2.1. Robust articles may be transported in strong outer packagings constructed of suitable material and of adequate strength and design in relation to the packaging capacity and its intended use; or,

A8.15.2.2. Robust articles may be transported unpackaged or on pallets when the dangerous goods are afforded equivalent protection by the article in which they are contained.

A8.16. Package Phosphorus, White or Yellow, Dry, or Under Water, or in Solution as follows:

A8.16.1. Phosphorus White or Yellow. Phosphorus white or yellow, when dry, must be cast solid and shipped in containers as follows:

A8.16.1.1. Steel, aluminum, or other metal drums (1A2, 1B2, 1N2) not over a 115 L (30 gallons) capacity each.

A8.16.1.2. In projectiles or bombs without bursting elements. **(T-0)**.

A8.16.2. Phosphorus White or Yellow in Water or Solution. Pack phosphorus, white or yellow, when in water or solution, in:

A8.16.2.1. Steel, aluminum, or other metal boxes (4A, 4B or 4N), or wooden boxes (4C1, 4C2, 4D, or 4F) with inside soldered or hermetically-sealed metal cans placed inside another soldered or hermetically-sealed metal can.

A8.16.2.2. Steel, aluminum, or other metal boxes (4A, 4B or 4N), or wooden boxes (4C1, 4C2, 4D, or 4F) with inside water-tight metal cans containing not over .5 kg (1 pound) of phosphorus with screw-top closures.

A8.16.2.3. Steel, aluminum, or other metal drums (1A1, 1B1, or 1N1) not over 250 L (66 gallons) capacity each.

A8.16.2.4. Steel, aluminum, or other metal drums (1A2, 1B2, or 1N2) not over 115 L (30 gallons) capacity each.

A8.16.3. White Phosphorus Igniters. Pack white phosphorus igniters one each in a hermetically-sealed (soldered) or watertight metal can, sealed airtight and positively fastened. Pack no more than 25 metal cans in a wooden box (4C1, 4C2, 4D, or 4F).

A8.17. Smokeless Powder for Small Arms (100 pounds or less) which has been reclassified to Class 4.1 in accordance with 49CFR Sections 173.56, 173.58, and 173.171 may be transported with the limitations and packaged as follows: The PSN "SMOKELESS POWDER FOR SMALL ARMS" is only valid for domestic movement. For international shipment use the PSN "POWDER, SMOKELESS" and package the material as required by the packaging paragraph for powder, smokeless. Only combination packaging with inner packagings not exceeding 3.6 kg (8 pounds) net mass packed in outer packaging of UN 4G fiberboard boxes meeting the Packing Group I standards are authorized. Arrange and protect inner packagings to prevent simultaneous ignition of the contents. The complete package must be of the same type that has been examined as required in 49 CFR Section 173.56 and meet A3.3.1. **(T-0)**. Not more than 45.4 kg (100 pounds) is allowed on the aircraft.

A8.18. Package Batteries and Cells Containing Sodium as follows: Ensure batteries and cells do not contain any hazardous material other than sodium, sulfur, or sodium compounds (e.g., sodium polysulfides, sodium tetrachloroaluminate, etc.). Do not offer batteries or cells for transportation at a temperature at which there is any liquid elemental sodium present in the battery or cell. Ensure the external battery temperature does not exceed 55 degrees C (130 degrees F). Ensure batteries are protected from external short circuit.

A8.18.1. Batteries must consist of cells secured within and fully enclosed by a metal casing. **(T-0)**. Ship unpackaged or in nonspecification protective packagings. UN specification containers are not required.

A8.18.2. Cells must consist of hermetically sealed metal casings that completely enclose the hazardous material. **(T-0)**. Pack cells with sufficient cushioning material to secure against movement; and to prevent contact between cells and between cells and the internal surfaces of the outer packaging. Pack cells in packaging that meets the PG II performance level. Package in drums or boxes as follows:

Inner packaging	Outer packaging
Not required	**Drums:** steel (1A2), aluminum (1B2), plywood (1D), fiber (1G), plastic (1H2), or other metal (1N2) ***or*** **Jerricans:** steel (3A2), aluminum (3B2), or plastic (3H2) ***or*** **Boxes:** steel (4A), aluminum (4B), wood (4C1or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), plastic (4H1 or 4H2), or other metal (4N)

A8.19. Package Polyester Resin Kits as follows: Polyester resin and fiberglass repair kits consist of two components: a base material in Class 4.1, PG II or III, and an organic peroxide activator. Only organic peroxides of Type D, E, or F not requiring temperature controls are authorized. Assign PG II or III according to the criteria for Class 4.1, applied to the base material. Ensure each component is separately packed in an inner packaging. The components may be placed in the same outer packaging provided they will not react dangerous in the event of leakage. Secure closures on inner packagings containing liquids by secondary means. The total quantity of activator and base material may not exceed 5 kg (11 pounds) per package for a Packing Group II base material. The total quantity of activator and base material may not exceed 10 kg (22 pounds) per package for a Packing Group III base material. The total quantity of polyester resin kits per package is calculated on a one-to-one basis (e.g., 1 L equals 1 kg).

A8.19.1. Package organic peroxides in drums, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Plastic tube packaging ***or*** Flexible tube packaging **Note:** Maximum quantity of organic peroxide per inner packaging is 125 ml (4.22 ounces) for liquids and 500 g (1 lb.) for solids.	**Drums:** steel (1A2), aluminum (1B2), fiber (1G), plastic (1H2), or other metal (1N2) ***or*** **Jerricans:** steel (3A2), aluminum (3B2), or plastic (3H2) ***or*** **Boxes:** steel (4A), aluminum (4B), wooden (4C1 or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), plastic (4H2), or other metal (4N)

A8.19.2. Package flammable solid in drums, jerricans, or boxes as follows:

Inner packaging	Outer packaging
Receptacle: glass or earthenware, plastic, metal or aluminum **Note:** PG II base material limited to 5 kg (11 pounds) in metal or plastic inner packagings and 1 kg (2.2 pounds) in glass inner packagings. PG III base material limited to 10 kg (22 pounds) in metal or plastic inner packagings and 2.5 kg (5.5 pounds) in glass inner packagings	**Drums:** steel (1A2), aluminum (1B2), plywood (1D), fiber (1G), plastic (1H2), or other metal (1N2) ***or*** **Jerricans:** steel (3A2), aluminum (3B2), or plastic (3H2) ***or*** **Boxes:** steel (4A), aluminum (4B), wooden (4C1 or 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), plastic (4H1 or 4H2), or other metal (4N)

A8.20. Fuel Cell Cartridges.

A8.20.1. The weight of the fuel cells may not exceed 1 kg.

Inner packaging	Outer packaging
Not required	**Drums:** plywood (1D), fiberboard (1G), plastic (1H2) ***or*** **Jerricans:** plastic (3H2) ***or*** **Boxes:** wood (4C1, 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G), plastic (4H2)

A8.21. Fuel Cells Contained in Equipment

A8.21.1. UN specification packaging is not required. Pack fuel cells in strong outer container. Protect installed fuel cells in equipment against short circuit, and protect the entire system against inadvertent operation. Fuel cell systems may not charge batteries during transport.

A8.21.2. Protect the terminals of the installed fuel cells to prevent short circuit by use of protective coverings, taping, etc.

A8.22. Fuel Cells Packed With Equipment

A8.22.1. UN specification packaging is not required. Pack fuel cells in strong outer container in inner packagings or placed in the outer packaging with cushioning material or divider(s) in order to protect against damage that may be caused by the movement or placement of contents within the outer packaging. The maximum number of fuel cell cartridges in the intermediate packaging may not be more than the number required to power the equipment plus two spares.