

## Attachment 18

### COMPATIBILITY

**A18.1. General Requirements.** For military members, failure to obey the mandatory provisions from paragraphs A18.2 through A18.4 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 A18.2 through A18.4 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 follow specific segregation /compatibility and deviation instructions for movement of hazardous cargo via military airlift. **(T-0).** Packages containing hazardous materials that might react dangerously with one another may not be loaded or transported in a position that would allow interaction between the material in the event of leakage. Use segregation requirements for hazardous material on military aircraft identified in Table A18.1. and Table A18.2. to determine segregation requirements.

A18.1.1. Table A18.1. details segregation requirements for all hazardous materials.

A18.1.2. Table A18.2. specifies compatibility requirements for Class 1.

A18.1.3. Paragraph A18.4. specifies compatibility requirements for tactical and contingency operations under the authority of Chapter 3.

**A18.2. Segregation Requirements for All Hazardous Materials.** Table A18.1 indicates the explosives and other hazardous materials that may not be loaded, transported, or stored together.

A18.2.1. Only the primary hazard class or division are considered for segregation. Do not use subsidiary hazards and accessorial hazards to determine segregation requirements when using Table A18.1.

A18.2.2. The absence of any hazard class or a blank space in the table indicates that no restrictions apply.

A18.2.3. The letter "X" at an intersection of horizontal and vertical columns indicates that these articles may not be loaded, transported , or stored together. For example, in Table A18.1., Class 3 flammable liquids, may not be loaded, transported, or stored with Class 1.1.

A18.2.4. The letter "O" at an intersection of horizontal and vertical columns indicates that these articles may not be loaded together unless separated by a 463L pallet position or not less than a distance of 2.2 m (88 inches) in all directions. For example, Class 8 corrosive liquids loaded on a 463L pallet, may not be transported with Class 4.1 flammable solids on an adjoining pallet. If loaded in a logistic rail mode (e.g., C-17), separate these items by 2.2 m (88 inches) and locate on different pallets.

A18.2.5. The "\*" at an intersection of horizontal and vertical columns indicates that segregation among different Class 1 materials is identified in Table A18.2.

A18.2.6. Be sure to check notes for compatibility.

**A18.3. Segregation Requirements for Class 1 Materials.** Table A18.2. identifies Class 1 materials that may not be loaded, transported, or stored together.

A18.3.1. A blank space in the table indicates that no restrictions apply.

A18.3.2. The letter "X" at an intersection of horizontal and vertical columns shows that these articles may not be loaded or stored together. For example, do not load or store Class 1.2C with Class 1.2H.

A18.3.3. Unless otherwise authorized, do not pack explosives in the same outer packaging with other articles. Explosives of the same compatibility group or authorized combination of compatibility groups but a different class number may be packed together, provided that the whole package is treated as though its entire contents were comprised of the lower class number (higher hazard). For example, treat a mixed package of Class 1.2D explosives and Class 1.4D explosives as Class 1.2D explosives. However, when Class 1.5D is packed together with Class 1.2D, treat the whole package as Class 1.1D (for compatibility).

A18.3.4. Incompatible explosives may be packed together when approved according to TB 700-2/ NAVORDINST 8020.8B/TO 11A-1-47/DLAR 8220.1, *DOD Explosive Hazard Classification Procedures* or paragraph 2.3.2.

A18.3.5. Do not use subsidiary hazards to determine compatibility requirements when using Table A18.2.

A18.3.6. IATA or 49 CFR certified air shipments packaged within the same outer package or overpack using the appropriate IATA or 49 CFR Part 175 segregation may be accepted for military aircraft without unpacking and repacking. Segregate those IATA or 49 CFR packages from other packages certified to AFMAN 24-204 using the appropriate segregation in this attachment.

A18.3.7. Be sure to check notes for compatibility.

**A18.4. Chapter 3 Segregation/Compatibility.** The requirements of Table A18.1. and Table A18.2. may be deviated from when transporting cargo approved to be airlifted using provisions of Chapter 3, consistent with operational requirements. Normally incompatible hazardous materials may be transported on the same aircraft when separated to the maximum extent possible. Compatibility waivers are not required. Use Chapter 3 segregation/compatibility, to include complete round rigging, for exercises only when there is an intent to use or fire explosives and ammunition. The following restrictions are mandatory:

A18.4.1. Explosives in compatibility groups A, J, K, and L can only be shipped with material in compatibility group S and Class 9.

A18.4.2. Fissile class III radioactive materials (Class 7) cannot be loaded, transported, or stored on the same aircraft with any other hazardous material.

A18.4.3. Class 1.1, 1.2, and 1.3 cannot be shipped with any Inhalation Hazard Zone A material.

A18.4.4. Class 1.1, 1.2, and 1.3 cannot be shipped with Class 6.1 poisonous liquids, PG I.

A18.4.5. Cyanides or cyanide mixtures (Class 6.1) cannot be loaded, transported, or stored with any corrosive Class 8 material.

Table A18.1. Revised: Segregation Table for Hazardous Materials.

Class or Division Note 7, Note 10	Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas Other than Zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquid PG I Zone A	7	8 Liquid Only	9 UN 3480, 3090 Only
Notes		1, 6, 11, 12	11, 12	11, 12	11, 12	11	9, 11		12	12	11 12	11, 12	12	12	1, 11, 12	12	4, 12	2, 3	4, 5, 6, 8	11, 12
1.1 and 1.2	1, 6, 11, 12	*	*	*	*	*	X		X	X	X	X	X	X	X	X	X	X	X	0
1.3	11, 12	*	*	*	*	*	X		X	X	X	X	X	X	X	X	X	0	X	0
1.4	11, 12	*	*	*	*	*	0		0	0	0		0				0		0	0
1.5	11, 12	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X	0
1.6	11	*	*	*	*	*														0
2.1	9, 11	X	X	0	X				X	0			0	0	0	0	0	0	0	0
2.2					X															
2.3 Zone A	12	X	X	0	X		X				X	X	X	X	X	X			X	
2.3 Other than Zone A	12	X	X	0	X		0				0	0	0	0	0	0			0	
3	11, 12	X	X	0	X				X	0		0	0	0	0	0	X			0
4.1	11, 12	X	X		X				X	0	0						X		0	0
4.2	12	X	X	0	X		0		X	0	0						X		X	
4.3	12	X	X		X		0		X	0	0						X		0	
5.1	1, 11, 12	X	X		X		0		X	0	0						X		0	0
5.2	12	X	X		X		0		X	0	0						X		0	
6.1 Liquid PG I Zone A	4, 12	X	X	0	X		0				X	X	X	X	X	X			X	
7	2, 3	X	0		X		0													
8 Liquid Only	4, 5, 6, 8	X	X	0	X		0		X	0		0	X	0	0	0	X			
9 UN3480, UN3090 Only	11, 12	0	0	0	0	0	0				0	0			0					

**Notes:**

1. Ammonium nitrate fertilizer may be loaded, transported, or stored with Class 1.1 or 1.5 materials.
2. Do not load, transport, or store fissile class III radioactive material (Class 7) on the same aircraft with any other hazardous material.
3. Normal uranium, depleted uranium, and thorium metal in solid form radioactive materials (Class 7) may be loaded and transported with Class 1.1, 1.2, and 1.5 (explosives).
4. Do not load, transport, or store cyanides or cyanide mixtures (Class 6.1) with any Class 8 materials.
5. Separate nitric acid (Class 8) in carboys by 2.2 m (88 inches) in all directions from other corrosives materials in carboys when loaded on the same aircraft.
6. Do not load, transport, or store charged electric storage batteries (Class 8) on the same aircraft with any Class 1.1 or 1.2.
7. Ship the following materials with each other and with all other hazardous materials without compatibility restrictions (ensure compliance with Notes 4, 5, and 6):
  - 7.1. Class 6.1 toxic solids and liquids (other than PG I, zone A) See Note 4 concerning restrictions for cyanides or cyanide mixtures.
  - 7.2. Class 8 solids
  - 7.3. Class 9
  - 7.4. Excepted Quantities
  - 7.5. Containers or articles drained but not purged containing 500 ml (17 ounces) or less of Class 3
8. Class 8 corrosive liquids may not be loaded above or adjacent to Class 4 (flammable solid) material or Class 5 (oxidizing) material.
9. Class 2.1 aerosol cans may be shipped with other incompatible items when separated in all directions by a minimum of 88 inches.
10. Items classified by a predominate hazard other than Class 1 but contain small amounts of explosive materials and assigned an explosive compatibility letter for storage may be shipped with Class 1 material according to Table A18.2. For example Class 4.2G may be shipped with Class 1.3G.
11. added: Segregate lithium batteries (UN3480 and UN3090 only) from hazardous materials classified in Class 1 (other than Division 1.4S), Division 2.1, Class 3, Division 4.1 or Division 5.1.
12. Segregation is not required between UN3528 and other hazardous materials.

**Table A18.2. Compatibility Table for Class 1 (Explosive) Materials.**

Compatibility Group	A	B	C	D	E	F	G	H	J	K	L	N	S
<b>Notes</b>													
<b>A</b>		X	X	X	X	X	X	X	X	X	X	X	X
<b>B 1, 2, 8</b>	X		X	X	X	X	X	X	X	X	X	X	
<b>C 8</b>	X	X				X	X	X	X	X	X		
<b>D 8</b>	X	X				X	X	X	X	X	X		
<b>E 8</b>	X	X				X	X	X	X	X	X		
<b>F 3</b>	X	X	X	X	X		X	X	X	X	X	X	
<b>G 4, 5, 7, 8</b>	X	X	X	X	X	X		X	X	X	X	X	
<b>H</b>	X	X	X	X	X	X	X		X	X	X	X	
<b>J</b>	X	X	X	X	X	X	X	X		X	X	X	
<b>K</b>	X	X	X	X	X	X	X	X	X		X	X	
<b>L 6</b>	X	X	X	X	X	X	X	X	X	X		X	X
<b>N</b>	X	X				X	X	X	X	X	X		
<b>S 7, 8</b>	X										X		

**Notes:**

1. Group "B" explosives UN0255, UN0257, UN0267, and UN0361 may be loaded and transported with groups "C," "D," and "E" explosives on cargo aircraft only. Passenger deviations are not authorized.
2. Group "B" explosives packaged in an EOD MK 663, MOD 0 container may be loaded and transported with groups "C" through "H" and group "S" explosives.
3. Group "F" explosives UN0292 may be loaded and transported with groups "C," "D," and "E" explosives on cargo aircraft only. Passenger deviations are not authorized.
4. Group "G" explosives UN0019, UN0300, UN0301, and UN0325 may be loaded and transported with all other explosives compatible with group "S" explosives on cargo aircraft only. Passenger deviations are not authorized.
5. Group "G" explosives UN0009, UN0018, UN0314, UN0315, UN0317, UN0319, and UN0320 may be transported with groups "C," "D," and "E" explosives on cargo aircraft only. Passenger deviations are not authorized.
6. Group "L" explosives may only be loaded and transported with an identical item.
7. Class 1.1 and 1.2 explosives may not be shipped with UN0333, UN0334, UN0335, UN0336, and UN0337.
8. Class 1.4, Compatibility Groups B and G may be loaded and transported together or with Class 1.4 Compatibility Groups C, D, and E on cargo aircraft only.

**A18.5. Classification Codes and Compatibility Groups of Explosives.** The classification code for an explosive consists of the class number followed by the compatibility group letter. Compatibility group letters are used to specify the controls required for transportation and

storage and to prevent the additional hazard that might occur if certain types of explosives are transported or stored together. Ensure all explosives entering the Defense Transportation System are assigned a final or interim hazard classification according to A3.3.1.4. Compatibility groups and classification codes for the various types of explosive substances and articles are identified in Table A18.3. Compatibility groups assigned to non-class 1 items are used for permanent storage and do not apply while item is in the Defense Transportation System.

**Table A18.3. Classification Codes.**

<b>Description of Substances or Article to be Classified</b>	<b>Compatibility Group</b>	<b>Classification Code</b>
Primary explosive substance	A	1.1A
Article containing a primary explosive substance and not containing two or more effective protective features	B	1.1B 1.2B 1.4B
Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance	C	1.1C 1.2C 1.3C 1.4C
Secondary detonating explosive substances or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features	D	1.1D 1.2D 1.4D 1.5D
Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing flammable liquid or hypergolic liquid)	E	1.1E 1.2E 1.4E
Article containing a secondary detonating explosive substance with its means of initiation, with a propelling charge (other than one containing flammable liquid or hypergolic liquid) or without propelling charge.	F	1.1F 1.2F 1.3F 1.4F
Pyrotechnic substance or article containing a pyrotechnic substance, or article containing both an explosive substance and illuminating, incendiary, tear-producing or smoke producing substance (other than a water-activated article or one containing white phosphorus, phosphide or flammable liquid or gel or hypergolic liquid).	G	1.1G 1.2G 1.3G 1.4G
Article containing both an explosive and white phosphorus	H	1.2H 1.3H
Article containing both an explosive substance and flammable liquid or gel	J	1.1J 1.2J

Description of Substances or Article to be Classified	Compatibility Group	Classification Code
		1.3J
Article containing both an explosive substance and a toxic chemical agent	K	1.2K 1.3K
Explosive substance or article containing an explosive substance and presenting a special risk (e.g., due to water-activation or presence of hypergolic liquids phosphides or pyrophoric substances) needing isolation of each type.	L	1.1L 1.2L 1.3L
Articles containing only extremely insensitive detonating substances	N	1.6N
Substance or article so packed or designed that any hazardous effects arising from accidental functioning are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.	S	1.4S

**A18.6. Joint Service Explosive Ordnance Disposal.** Joint Service EOD maintains an airlift compatibility waiver - accomplished annually. This is a joint US Air Force, US Navy and US Marine Corps coordinated compatibility waiver authorized for use strictly aboard organic channel airlift movements (e.g., non-tactical, non-contingency, and non-emergency airlift mission, Chapter 2 of this manual). This waiver does not authorize airlift of incompatible hazardous material aboard missions outlined in Chapter 3 of this manual. The approval to airlift the incompatible materials is based, in part, on cargo information provided by HTC (EOD/FPJ), DSN (318) 439-4246. This approval authorizes airlift of these incompatible hazardous materials aboard operationally controlled AMC, Naval Logistics Office (NALO), US Marine Corps and US military cargo aircraft. This waiver does not apply to contract (commercial) aircraft operating under DOT-SP 7573.