

HAZARDOUS MATERIALS LOAD AND SEGREGATION CHART

CLASS	PLACARDS	CLASS OR DIVISION	PLACARD WEIGHT	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 ZONE B	3	4.1	4.2	4.3	5.1	5.2	6.1 LIQUIDS PG I ZONE A	7	8 LIQUIDS				
					1.1	1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 GAS ZONE A	2.3 GAS ZONE B	3	4.1	4.2	4.3	5.1	5.2	6.1 LIQUIDS PG I ZONE A	7	8 LIQUIDS				
CLASS 1		1.1	ANY QUANTITY	A	*	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
					*Add division number and compatibility group																						
CLASS 2		1.3	ANY QUANTITY		*	*	*	*	*	*	X		X	X	X		X	X	X	X	X	X		X			
					*Add division number and compatibility group																						
CLASS 2		1.4	1,001 lbs.		*	*	*	*	*	*	O		O	O	O		O						O	O			
					*Add compatibility group																						
CLASS 2		1.5	1,001 lbs.	A	*	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
					VERY INSENSITIVE EXPLOSIVES																						
CLASS 2		1.6	1,001 lbs.		*	*	*	*	*	*																	
					EXTREMELY INSENSITIVE EXPLOSIVES																						
CLASS 3		2.1	1,001 lbs.		X	X	O	X					X	O									O	O			
					FLAMMABLE GASES																						
CLASS 2		2.2	1,001 lbs.	B	X				X																		
					NON-TOXIC NON-FLAMMABLE GASES																						
CLASS 2		2.3	ANY QUANTITY		X	X	O	X			X				X	X	X	X	X	X	X			X			
					POISONOUS GAS ZONE A																						
CLASS 2		2.3	ANY QUANTITY		X	X	O	X			O				O	O	O	O	O	O	O			O			
					POISONOUS GAS ZONE B																						
CLASS 3		3	1,001 lbs.		X	X	O	X					X	O									X				
					FLAMMABLE LIQUIDS																						
CLASS 4		4.1	1,001 lbs.		X				X				X	O									X	O			
					FLAMMABLE SOLIDS																						
CLASS 4		4.2	1,001 lbs.		X	X	O	X					X	O									X	X			
					SPONTANEOUSLY COMBUSTIBLE MATERIALS																						
CLASS 4		4.3	ANY QUANTITY		X	X			X				X	O									X	O			
					DANGEROUS WHEN WET MATERIALS																						
CLASS 5		5.1	1,001 lbs.	A	X	X			X				X	O	O								X	O			
					OXIDIZERS																						
CLASS 5		5.2	1,001 lbs.	F	X	X			X				X	O									X	O			
					ORGANIC PEROXIDES																						
CLASS 6		6.1	ANY QUANTITY	E H	X	X	O	X			O				X	X	X	X	X	X				X			
					POISONOUS LIQUIDS PG I ZONE A																						
CLASS 7		7	ANY QUANTITY (yellow III label)		X				X		O																
					RADIOACTIVE MATERIALS																						
CLASS 8		8	1,001 lbs.		X	X	O	X					X	O			O	X	O	O	O	X					
					CORROSIVE LIQUIDS																						

§177.848(e) INSTRUCTIONS FOR USING THE SEGREGATION TABLE FOR HAZARDOUS MATERIALS ARE AS FOLLOWS:

CLASS 3	COMBUSTIBLE LIQUIDS		IN BULK	C G	<p>(1) The absence of any hazard class or division or a blank space in the Table indicates that no restrictions apply.</p> <p>(2) The letter "X" in the Table indicates that these materials may not be loaded, transported, or stored together in the same transport vehicle or storage facility during the course of transportation.</p> <p>(3) The letter "O" in the Table indicates that these materials may not be loaded, transported, or stored together in the same transport vehicle or storage facility during the course of transportation unless separated in a manner that, in the event of leakage from packages under conditions normally incident to transportation, commingling of hazardous materials would not occur. Notwithstanding the methods of separation employed, Class 8 (corrosive) liquids may not be loaded above or adjacent to Class 4 (flammable) or Class 5 (oxidizing) materials; except that shippers may load truckload shipments of such materials together when it is known that the mixture of contents would not cause a fire or a dangerous evolution of heat or gas.</p> <p>(4) The "R" in the Table indicates that segregation among different Class 1 (explosive) materials is governed by the compatibility table in paragraph (f) of this section.</p> <p>(5) The note "A" in the third column of the table means that, notwithstanding the requirements of the letter "X", ammonium nitrate (UN 1942) and ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (explosive) or Division 1.5 materials, unless otherwise prohibited by §177.835(c).</p> <p>(6) When the §172.101 Table or §172.402 of this subchapter requires a package to bear a subsidiary hazard label, segregation appropriate to the subsidiary hazard must be applied when that segregation is more restrictive than that required by the primary hazard. However, hazardous materials of the same class may be stowed together without regard to segregation required for any secondary hazard if the materials are not capable of reacting dangerously with each other and causing combustion or dangerous evolution of heat, evolution of flammable, poisonous, or asphyxiant gases, or formation of corrosive or unstable materials.</p>
CLASS 6	OTHER THAN POISONOUS LIQUIDS PG I ZONE A	 	1,001 lbs.	E H	
CLASS 9	MISCELLANEOUS		1,001 lbs.	C D	

NOTES



§177.848(c) ADDITIONAL SEGREGATION REQUIREMENTS

- A. See instructions §177.848(e)(5).
- B. For domestic transportation of oxygen, compressed or oxygen, refrigerated liquid, the oxygen placard may be used in place of NON-FLAMMABLE GAS placard (§172.504(f)(7)).
- C. No applicable segregation restrictions in §177.848.
- D. For domestic transportation, a Class 9 placard is not required. A bulk packaging containing a Class 9 material must be marked with the identification number displayed on a Class 9 placard, or an orange panel, or a white square-on-point display configuration (§172.504(f)(9)).
- E. Packages with POISON or POISON INHALATION HAZARD labels, or a POISON label displaying "PG III," or "PG III" marked next to a POISON label may not be transported with foodstuffs, feed or any other edible material, intended for humans or animals. For exceptions see §177.841(e).
- F. Placard any quantity of a 5.2, ORGANIC PEROXIDE, TYPE B, LIQUID OR SOLID, TEMPERATURE CONTROLLED.
- G. No placard is required for combustible liquids in non-bulk packages (119 gal. or less).
- H. See §177.848(c) for restrictions.

In addition to the provisions of paragraph (d) of this section and except as provided in §173.12(e) of this subchapter, cyanides, cyanide mixtures or solutions may not be stored, loaded and transported with acids if a mixture of the materials would generate hydrogen cyanide; Division 4.2 materials may not be stored, loaded and transported with Class 8 liquids; and Division 6.1 Packing Group I, Hazard Zone A material may not be stored, loaded and transported with Class 3 material, Class 8 liquids, and Division 4.1, 4.2, 4.3, 5.1 or 5.2 materials.

See §173.12(e) for segregation exceptions for waste materials.

HAZARDOUS MATERIALS LOAD AND SEGREGATION CHART

COMPATIBILITY TABLE FOR CLASS 1 (EXPLOSIVE) MATERIALS													CLASS 1 EXPLOSIVE PLACARDS		
COMPATIBILITY GROUP	A	B	C	D	E	F	G	H	J	K	L	N	S	DIVISIONS 1.1, 1.2 & 1.3	DIVISION 1.4
A		X	X	X	X	X	X	X	X	X	X	X	X	 The Division number and compatibility group are printed in black ink where the * is shown. Placard any quantity of Division 1.1, 1.2 or 1.3 material. * Division Numbers and Compatibility Group 1.1A 1.2B 1.2L 1.1B 1.2C 1.3C 1.1C 1.2D 1.3F 1.1D 1.2E 1.3G 1.1E 1.2F 1.3H 1.1F 1.2G 1.3J 1.1G 1.2H 1.3K 1.1J 1.2J 1.3L 1.1L 1.2K	 The compatibility group is printed in black ink, where the * is shown. Placard 454 kg. (1,001 lbs.) or more of 1.4 Explosives. * Compatibility Group B C D E F G S
B	X		X	X ⁽⁴⁾	X	X	X	X	X	X	X	X	4/5		
C	X	X		2	2	X	6	X	X	X	X	3	4/5		
D	X	X ⁽⁴⁾	2		2	X	6	X	X	X	X	3	4/5		
E	X	X	2	2		X	6	X	X	X	X	3	4/5		
F	X	X	X	X	X		X	X	X	X	X	X	4/5		
G	X	X	6	6	6	X		X	X	X	X	X	4/5		
H	X	X	X	X	X	X	X		X	X	X	X	4/5		
J	X	X	X	X	X	X	X	X		X	X	X	4/5		
K	X	X	X	X	X	X	X	X	X		X	X	4/5		
L	X	X	X	X	X	X	X	X	X	X	1	X	X		
N	X	X	3	3	3	X	X	X	X	X	X	X	4/5		
S	X	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	X	4/5	4/5		

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(g) Instructions for using the compatibility table for Class 1 (explosive) materials are as follows:

(1) A blank space in the Table indicates that no restrictions apply.

(2) The letter "X" in the Table indicates that explosives of different compatibility groups may not be carried on the same transport vehicle.

(3) The numbers in the Table mean the following:

(i) "1" means an explosive from compatibility group L shall only be carried on the same transport vehicle with an identical explosive.

(ii) "2" means any combination of explosives from compatibility groups C, D, or E is assigned to compatibility group E.

(iii) "3" means any combination of explosives from compatibility groups C, D, or E with those in compatibility group N is assigned to compatibility group D.

(iv) "4" means 'see §177.835(g)' when transporting detonators.

(v) "5" means Division 1.4S fireworks may not be loaded on the same transport vehicle with Division 1.1 or 1.2 (explosive) materials.

(vi) "6" means explosive articles in compatibility group G, other than fireworks and those requiring special handling, may be loaded, transported and stored with other explosive articles of compatibility groups C, D and E, provided that explosive substances (such as those not contained in articles) are not carried in the same transport vehicle.

(h) Except as provided in paragraph (i) of this section, explosives of the same compatibility group but of different divisions may be transported together provided that the whole shipment is transported as though its entire contents were of the lower numerical division (i.e., Division 1.1 being lower than Division 1.2). For example, a mixed shipment of Division 1.2 (explosive) materials and Division 1.4 (explosive) materials, both of compatibility group D, must be transported as Division 1.2 (explosive) materials.

(i) When Division 1.5 materials, compatibility group D, are transported in the same freight container as Division 1.2 (explosive) materials, compatibility group D, the shipment must be transported as Division 1.1 (explosive) materials, compatibility group D.

PLACARDS NOT REQUIRED FOR:

- Infectious substances (Division 6.2).
- Combustible liquids in non-bulk packagings.
- Limited quantities identified on shipping papers or marked per §172.315.
- Radioactive (Class 7) I or II labels.
- Small quantities per §173.4.
- Excepted quantities per §173.4a.
- Class 9 materials in domestic transport.
- Materials prepared per §173.13.



DANGEROUS PLACARD FOR MIXED LOADS

A freight container, unit load device, transport vehicle, or rail car which contains non-bulk packages with two or more categories of hazardous materials that require different placards, as specified in Table 2, may be placarded with a DANGEROUS placard instead of the separate placarding specified for each of the materials in Table 2. However, when 1,000 kg (2,205 pounds) aggregate gross weight or more of one category of material is loaded therein at one loading facility on a freight container, unit load device, transport vehicle, or rail car, the placard specified in Table 2 for that category must be applied.

- Division 1.4
- Division 1.5
- Division 1.6
- Division 2.1
- Division 2.2
- Class 3
- Combustible liquid
- Division 4.1



- Division 4.2
- Division 5.1
- Division 5.2, other than Type B, liquid or solid, temperature controlled
- Division 6.1, other than material poisonous by inhalation
- Class 8
- Class 9

§172.504(g) COMPATIBILITY GROUP LETTER

For shipments of Class 1 (explosive materials) by aircraft or vessel, the applicable compatibility group letter must be displayed on the placards, or labels when applicable, required by this section. When more than one compatibility group placard is required for Class 1 materials, only one placard is required to be displayed, as provided in paragraphs (g)(1) through (g)(4) of this section. For the purposes of paragraphs (g)(1) through (g)(4), there is a distinction between the phrases *explosive articles* and *explosive substances*. *Explosive article* means an article containing an explosive substance; examples include a detonator, flare, primer or fuse. *Explosive substance* means a substance contained in a packaging that is not contained in an article; examples include black powder and smokeless powder.



- Explosive articles of compatibility groups C, D or E may be placarded displaying compatibility group E.
- Explosive articles of compatibility groups C, D, or E, when transported with those in compatibility group N, may be placarded displaying compatibility group D.
- Explosive substances of compatibility groups C and D may be placarded displaying compatibility group D.
- Explosive articles of compatibility groups C, D, E or G, except for fireworks, may be placarded displaying compatibility group E.

§172.505 PLACARDING FOR SUBSIDIARY HAZARDS



(a) Each transport vehicle, freight container, portable tank, unit load device, or rail car that contains a poisonous material subject to the "Poison Inhalation Hazard" shipping description of §172.203(m) must be placarded with a POISON INHALATION HAZARD or POISON GAS placard, as appropriate, on each side and each end, in addition to any other placard required for that material in §172.504. Duplication of the POISON INHALATION HAZARD or POISON GAS placard is not required.

(b) In addition to the RADIOACTIVE placard which may be required by §172.504(e), each transport vehicle, portable tank or freight container that contains 454 kg (1,001 pounds) or more gross weight of non-fissile, fissile-excepted, or fissile uranium hexafluoride must be placarded with a CORROSIVE placard and a POISON placard on each side and each end.

(c) Each transport vehicle, portable tank, freight container or unit load device that contains a material which has a subsidiary hazard of being dangerous when wet, as defined in §173.124 of this subchapter, shall be placarded with DANGEROUS WHEN WET placards, on each side and each end, in addition to the placards required by §172.504.

(d) Hazardous materials that possess secondary hazards may exhibit subsidiary placards that correspond to the placards described in this part, even when not required by this part (see also §172.519(b)(4) of this subpart).