

HAZARDOUS MATERIALS LOAD AND SEGREGATION CHART

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

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

- (1) The absence of any hazard class or division or a blank space in the Table indicates that no restrictions apply.
- (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.
- (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 3 (poisonous) 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.
- (4) The "X" in the Table indicates that segregation among different Class 1 (explosive) materials is governed by the compatibility table in paragraph (f) of this section.
- (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.
- (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 subsidiary 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.

CLASS 3 COMBUSTIBLE LIQUIDS		IN BULK	C G
CLASS 6 OTHER THAN INHALATION HAZARD, ZONES A or B	 	1,001 lbs.	C E
CLASS 9 MISCELLANEOUS		1,001 lbs.	C D

- NOTES**
- A. See instructions §177.846(a)(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. Applicable segregation restrictions in §177.848(d).
- D. For domestic transportation, a Class 9 placard is not required. A bulk packaging using a Class 9 material must be marked with the appropriate identification label displayed on a Class 9 placard, an orange panel or a white square-on-point label configuration as required by subpart D of this part (§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. Apply 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).

- §177.848(c)**
- In addition to the provisions of paragraph (d) of this section and except as provided in §173.12(g) of this subchapter, cyanide mixtures or solutions may not be stored, loaded and transported with acids if a mixture of the materials would generate hydrogen cyanide, and Division 4.2 materials may not be stored, loaded and transported with Class 2 liquids.


- §173.12(e) EXCEPTIONS FROM SEGREGATION REQUIREMENTS**
- (1) The provisions of §§174.81(c), 176.83(b) and 177.848(c) of this subchapter do not apply to waste cyanides or waste cyanide mixtures or solutions stored, loaded, or transported with acids in accordance with the following:
 - (i) The waste cyanides or waste cyanide mixtures or solutions must be packaged in lab packs in accordance with paragraph (b) of this section; (55 gallons) capacity;
 - (ii) The acids must be packaged in lab packs in accordance with paragraph (b) of this section; (55 gallons) capacity;
 - (iii) Waste cyanides or waste cyanide mixtures may not exceed 2 kg (4.4 pounds) per inner receptacle and may not exceed 10 kg (22 pounds) per outer packaging; waste cyanide solutions may not exceed 2 L (0.6 gallon) per inner receptacle and may not exceed 10 L (3.0 gallons) per outer packaging;
 - (iv) The waste cyanides or waste cyanide mixtures or solutions must be:
 - (A) Separated from the acids by a minimum horizontal distance of 1.2 m (4 feet), and
 - (B) Loaded at least 100 mm (4 inches) off the floor of the freight container, unit load device, transport vehicle or rail car.
 - (2) The provisions of §§174.81(d), 176.83(b) and 177.848(d) of this subchapter do not apply to waste Division 4.2 materials stored, loaded or transported with Class 8 liquids in accordance with the following:
 - (i) The waste Division 4.2 materials are packaged in lab packs in accordance with paragraph (b) of this section; (55 gallons) capacity;
 - (ii) The Class 8 liquids are packaged in lab packs in accordance with paragraph (b) of this section; (55 gallons) capacity;
 - (iii) The waste Division 4.2 materials may not exceed 2 kg (4.4 pounds) per inner receptacle and may not exceed 10 kg (22 pounds) per outer packaging;
 - (iv) The waste Division 4.2 materials must be separated from the Class 8 liquids by a minimum horizontal distance of 1.2 m (4 feet);
 - (v) The waste Division 4.2 materials and the Class 8 liquids are loaded at least 100 mm (4 inches) off the floor of the freight container, unit load device, transport vehicle or rail car.

HAZARDOUS MATERIALS LOAD AND SEGREGATION CHART

COMPATIBILITY TABLE FOR CLASS 1 (EXPLOSIVE) MATERIALS													
COMPATIBILITY GROUP	A	B	C	D	E	F	G	H	J	K	L	N	S
A		X	X	X	X	X	X	X	X	X	X	X	X
B	X		X	X ⁽⁵⁾	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 ⁽⁵⁾	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		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	

CLASS 1 EXPLOSIVE PLACARDS

DIVISIONS 1.1, 1.2 & 1.3




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	

DIVISION 1.4



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

DIVISION 1.5



The compatibility group is D. Placard 454 kg. (1,001 lbs.) or more of 1.5 Blasting Agents.

DIVISION 1.6



The compatibility group is N. Placard 454 kg. (1,001 lbs.) or more of 1.6 Explosives.

§177.848

(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 vehicle.

(h) Except as provided in paragraph (f) 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:
1. Infectious substances (Division 5.2).
 2. Combustible liquids in non-bulk packagings.
 3. ORM-D materials.
 4. Limited quantities when identified on papers.
 5. Radioactive (Class 7) I or II labels.
 6. Small quantities per §173.4.
 7. Excepted quantities per §173.4a.
 8. Class 9 materials in domestic transport.
 9. Materials prepared per §173.13.

DANGEROUS PLACARD FOR MIXED LOADS

Placard 454 kg (1,001 lbs.) gross weight of two or more categories of hazardous materials listed in Table 2. A freight container, unit load device, transport vehicle, or rail car which contains nonbulk 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.

- (1) Explosive articles of compatibility groups C, D or E may be placarded displaying compatibility group E.
- (2) Explosive articles of compatibility groups C, D, or E, when transported with those in compatibility group N, may be placarded displaying compatibility group D.
- (3) Explosive substances of compatibility groups C and D may be placarded displaying compatibility group D.
- (4) 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) of this subpart, each transport vehicle, portable tank or freight container that contains 454 kg (1,001 pounds) or more gross weight of fissile or low specific activity uranium hexafluoride shall be placarded with a CORROSIVE 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).

