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**DEPARTMENT OF TRANSPORTATION**

**Research and Special Programs  
Administration**

**49 CFR Parts 172, 174, 176, 177**

**[Docket No. HM-189A; Amdt. Nos. 172-89,  
174-45, 176-18, 177-62]**

**Hazardous Materials; Editorial  
Corrections and Clarifications**

**AGENCY: Materials Transportation  
Bureau (MTB), Research and Special  
Programs Administration, DOT.**

**ACTION: Final rule.**

**SUMMARY:** The purpose of these amendments to the Hazardous Materials Regulations (HMR) is to republish the segregation and separation charts of hazardous materials so they accurately portray various rules changes promulgated over the past several years. In addition, the format of the tables is changed to make the charts better suited for publication in the Code of Federal Regulations.

**EFFECTIVE DATE:** March 1, 1984.

**FOR FURTHER INFORMATION CONTACT:**  
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**SUPPLEMENTARY INFORMATION:** Docket  
No. HM-189 (48 FR 50444, Nov. 1, 1983)  
was opened, in part, for the purpose of  
correcting editorial errors which appear  
in the HMR and to amend sections  
which contain inadvertent omissions of  
information. The Docket schedule calls  
for a single publication each year; timed  
to immediately precede the printing date

established for revisions of Title 49, Code of Federal Regulations. The previous amendments adopted in this docket were issued without a republication of the segregation and separation charts of hazardous materials due to technical problems with their layout. Reformatting the charts eliminated those technical problems. Rather than waiting until the next scheduled publication of a final rule in this docket, these amendments are considered sufficiently important to justify their issuance at this time.

These amendments do not impose new requirements. The substantial changes to the charts were adopted under previous rulemaking which gave notice and considered public comments. The most significant of those amendments pertains to blasting agents and was accomplished in Docket No. HM-143 (44 FR 31180, May 31, 1979). Consequently, this final rule is issued without public notice and the amendments are effective immediately.

The MTB determined that this rule, as promulgated, is not a "major rule" under terms of Executive Order 12291 or significant under DOT implementing procedures (44 FR 11034). A final regulatory evaluation and environmental assessment was not prepared as these amendments are not substantive changes to the HMR.

Based on limited information available concerning size and nature of entities likely to be affected by these amendments, I certify that these amendments will not, as promulgated, have a significant economic impact on a substantial number of small entities.

The following is a section-by-section summary of the amendments.

**Part 172, Subpart B, Appendix A** is amended to correct the prefix to the identification number for 24 materials listed in § 172.101. Also, the description "hydrogen chloride" is added to the entry "UN1050—hydrogen chloride, anhydrous."

**Section 174.81** is revised for clarity. Notes 1 through 5 which followed the table now appear as paragraphs preceding the table. The lettered footnotes a through f are changed to the numbers 1 through 6 so they may be more easily distinguished.

"Blasting agents" is added at row 10. The blasting agents entry was originally promulgated in Docket No. HM-143; Amendment No. 174-34 (44 FR 31180, May 31, 1979), but was never incorporated in later editions of Title 49. Rows "10-15" are redesignated "11-16", respectively. References to certain rows in the footnotes are changed accordingly.

**Section 176.83** is amended by revising Table I. The X's at the intersection of row 17 and 18 with row 1 (low explosives or black powder) are repositioned to row 3 (initiating or priming explosives).

The heading of row 4 is amended to include detonating primers.

Footnote 2 is revised to remove references to columns which are nonexistent. The heading of row 16 is amended to remove "highway fuseses or railway fuseses" since they are not materials included in the class C explosives hazard class.

**Section 177.048** is revised for clarity. Notes 1 through 5 which followed the table now appear as paragraphs preceding the table. The lettered footnotes a through f are changed to the numbers 1 through 6 so they may be more easily distinguished.

"Blasting agents" is added at row 10. The blasting agents entry was originally promulgated in Docket No. HM-143; Amendment No. 177-45 (44 FR 31180, May 31, 1979); but was never incorporated in later editions of Title 49. Rows "10-15" are redesignated "11-16", respectively. Reference to certain rows in the footnotes are changed accordingly.

The heading of row d is amended to include detonating primers.

**List of Subjects**

**49 CFR Part 172**

Hazardous materials transportation.

**49 CFR Part 174**

Hazardous materials transportation, Railroad safety.

**49 CFR Part 176**

Hazardous materials transportation, Maritime carriers.

**49 CFR Part 177**

Hazardous materials transportation, Motor carriers.

In consideration of the foregoing, 49 CFR Parts 172, 174, 176, and 177 are amended as follows:

**PART 172—HAZARDOUS MATERIALS TABLES AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS**

1. In Part 172, Subpart B, Appendix A the entry from § 172.101 for "hydrogen chloride, anhydrous" is amended by adding the description "hydrogen chloride"; and the following entries from § 172.101 are amended by removing the identification number prefix "NA" and inserting, in its place, the prefix "UN":

Present	Change	Entry
NA1006	UN1006	Argon or Argon, compressed.
NA1035	UN1035	Ethane or Ethane, compressed.
NA1038	UN1038	Ethylene, refrigerated liquid.
NA1046	UN1046	Helium or Helium, compressed.
NA1049	UN1049	Hydrogen or Hydrogen, compressed.
NA1050	UN1050	Hydrogen chloride, anhydrous.
NA1065	UN1065	Neon or Neon, compressed.
NA1066	UN1066	Nitrogen or Nitrogen, compressed.
NA1070	UN1070	Nitrous oxide or Nitrous oxide, compressed.
NA1072	UN1072	Oxygen or Oxygen, compressed.
NA1073	UN1073	Oxygen, refrigerated liquid.
NA1913	UN1913	Neon, refrigerated liquid.
NA1951	UN1951	Argon, refrigerated liquid.
NA1961	UN1961	Ethane, refrigerated liquid.
NA1962	UN1962	Ethylene or Ethylene, compressed.
NA1963	UN1963	Helium, refrigerated liquid.
NA1966	UN1966	Hydrogen, refrigerated liquid.
NA1971	UN1971	Methane or Methane, compressed.
NA1972	UN1972	Methane, refrigerated liquid.
NA1972	UN1972	Natural gas, refrigerated liquid.
NA1977	UN1977	Nitrogen, refrigerated liquid.
NA2186	UN2186	Hydrogen chloride, refrigerated liquid.
NA2187	UN2187	Carbon dioxide, refrigerated liquid.
NA2201	UN2201	Nitrous oxide, refrigerated liquid.

2. Section 174.81 is revised to read as follows:

**PART 174—CARRIAGE BY RAIL**

**§ 174.81 Segregation and separation requirements for hazardous materials in rail cars.**

(a) Charged electric storage batteries must not be loaded in the same car nor stored with any class A explosive.

(b) Cyanides or cyanide mixtures must not be loaded or stored with acids or corrosive liquids.

(c) Gas identification sets may be loaded and transported with all articles named in the segregation and separation chart, except those in column c.

(d) Nitric acid, when loaded in the same car with other acids or other corrosive liquids in carboys, must be separated from the other carboys. A 2 by 6 inch plank, set on edge, should be nailed across the floor at least 12 inches from the nitric acid carboys, and the space between the plank and the carboys of nitric acid should be filled with sand, sifted ashes, or other incombustible absorbent material.

(e) Smokeless powder for small arms in quantities not exceeding 100 pounds net weight in one car shall be classed as flammable solid for purposes of transportation when examined for this classification by the Bureau of Explosives and approved by the Associate Director for HMR.

(f) Hazardous materials may not be loaded, transported, or stored together, except as provided in the following table:

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**PART 176—CARRIAGE BY VESSEL**

3. In § 176.83, Table I is revised to read as follows:

§ 176.83 Segregation requirements for cargo vessels and passenger vessels.

**Segregation and Separation Chart of Hazardous Materials — Table I**

**Footnotes**

- 1 Explosives, class A, and explosives, class B, must not be loaded or stowed with chemical ammunition containing incendiary charges or white phosphorus either with or without bursting charges. Chemical ammunition of the same classification containing incendiary or white phosphorus may be loaded and stowed together.
- 2 Bursting (explosive), boosters (explosive), or supplementary charges (explosive) without detonators when shipped by, to, or for, the Department's of the Army, Navy, and Air Force of the United States Government may be stowed with any of the articles named, except those in columns 3, 4, 10 and 16.

**Instructions**

The letter X at an intersection of horizontal rows and vertical columns shows that those materials must not be loaded or stowed together.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>CLASS A EXPLOSIVES</b>																		
Low explosives or black powder																		
High explosives or propellant explosives																		
Initiating or priming explosives with: barbituric anhydride; fulminate of mercury; guanyl nitrosulfonate; hexanitroazobenzene; lead azide; lead diphenylacetylene; nitrosoguanidine; pentaerythritol tetranitrate; tetrazene; lead mononitrososuccinate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Detonators detonating primers																		
Ammunition for cannon with explosive projectiles; gas projectiles; smoke-projectiles; incendiary projectiles; illuminating projectiles; ammunition for small-arms with incendiary projectiles; ammunition for small-arms with explosive projectiles; Small arms (explosive) boosters (explosive) gas projectiles; supplementary charges (explosive) without detonators																		
Explosive projectiles; bombs; torpedoes; mines; rifle or hand grenades (explosive); jet thrust units (solid) igniters; jet thrust rocket motors; igniters; rocket motor																		
Detonating fuzes class A explosives with or without radioactive components																		
Ammunition for cannon with empty inert-loaded or solid projectiles or without projectiles; rocket ammunition with empty inert-loaded or solid projectiles																		
<b>CLASS B EXPLOSIVES</b>																		
Propellant explosives; jet thrust units (solid) igniters; jet thrust rocket motors; rocket engines (liquid) igniters; rocket motor starter cartridges; jet engine																		
Fireworks; special or railway torpedoes																		
<b>CLASS C EXPLOSIVES</b>																		
Small arms ammunition or cartridges; practice ammunition																		
Primers for cannon or small arms; empty cartridge bags—black powder igniters; empty cartridge cases; primed empty grenades; primed combination primers or percussion caps; toy caps; explosive cable cutters; explosive rivets																		
Percussion fuzes; tracer fuzes or tracers																		
Time combination or detaching fuzes																		
Cordouan detonant fuzes; safety squibs; fuse lighters; fuse igniters; delay electric igniters; electric squibs; instantaneous fuse or igniter cord																		
Fireworks common																		
Blasting agents n.o.s.																		
Ammonium nitrate-fuel oil mixtures																		
<b>BLASTING AGENTS</b>																		

**PART 177—CARRIAGE BY PUBLIC  
WAY**

Section 177.848 is revised to read as follows:

**§ 177.848 Loading and storage chart of hazardous materials.**

(a) Charged electric storage batteries must not be loaded in the same vehicle with explosives, class A.

(b) Cyanides or cyanide, mixtures must not be loaded or stored with acids or corrosive liquids.

(c) Gas identification sets may be loaded and transported with all articles named in the segregation and separation chart, except those in column c.

(d) Nitric acid, when loaded in the same motor vehicle with other corrosive liquids in carboys, must be separated from the other carboys. A 2 by 6 inch plank set on edge, should be nailed across the motor vehicle floor at least 12 inches from the nitric acid carboys, and the space between the plank and the carboys of nitric acid should be filled with sand, sifted ashes, or other incombustible absorbent material.

(e) Smokeless powder for small arms in quantities not exceeding 100 pounds net weight in one motor vehicle shall be classed as a flammable solid for purposes of transportation when examined for this classification by the Bureau of Explosives and approved by the Associate Director for HMR.

(f) Hazardous materials must not be loaded, transported, or stored together, except as provided in the following table:

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# Segregation and Separation Chart of Hazardous Materials

## Footnotes

1. Detonators, class C explosives, may also be loaded and transported with articles named in columns 3, 9, 11, 12, 13, and 14. Loading and transportation of detonating primers, or detonators, except as prescribed in §177.835, in any quantity with articles named in columns b, c, e, or f is prohibited.
2. Corrosive liquids must not be loaded above or adjacent to flammable solids, oxidizing materials, ammunition for cannon with or without projectiles, or propellant explosives, except that shippers loading truckload shipments of corrosive liquids and flammable solids or oxidizing materials packages and who have obtained prior approval from the Department may load such materials together when it is known that the mixture of contents would not cause a dangerous evolution of heat or gas.
3. Explosives, class A, and explosives, class B must not be loaded or stored with chemical ammunition containing incendiary charges or white phosphorus either with or without bursting charges.
4. Burstiers (explosive), boosters (explosive), or supplementary charges (explosive) without detonators when shipped by, to, or for the Departments of the Army, Navy, and Air Force of the United States Government may be loaded with any of the articles named except those in columns c, d, 3, 9, 11, 12, 13, 14, 15 and 16.
5. Does not include blasting agents, ammonium nitrate-fuel oil mixtures, ammonium nitrate, fertilizer grade, which may be loaded, transported, or stored with high explosives, or with detonators containing not more than 1 gram of explosive each, excluding ignition and delay charges.
6. Normal uranium, depleted uranium, and thorium metal in solid form may also be loaded and transported with articles named in columns a, b, c, d, e, f, and g.

## Instructions

The letter X at an intersection shows that these materials must not be loaded or stored together. Example: Detonating luses, class A, with or without radioactive components, (g), must not be loaded or stored with high explosives or propellant explosives, (b).

CLASS C EXPLOSIVES	CLASS B EXPLOSIVES		CLASS A EXPLOSIVES		LOW EXPLOSIVES OR BLACK POWDER		HIGH EXPLOSIVES OR PROPELLANT EXPLOSIVES	
	a	b	c	d	e	f	g	h
1. Blasting agent: blasting agent label.								
2. Flammable liquids or flammable gases: flammable liquid or flammable gas label.								
3. Flammable solids: flammable solid label.								
4. Oxidizer: oxidizer label.								
5. Organic peroxide: organic peroxide label.								
6. Corrosive liquids: corrosive label.								
7. Nonflammable gases: N.F.G. label.								
8. Poisonous gases or liquids in tank car (anis., cylinders, projectiles or bombs): poison gas labels.								
9. Radioactive materials: radioactive label.								
10. Explosive projectiles: bombs, torpedoes; mines, rifle or hand grenades (explosive); jet thrust units (jet); igniters; jet thrust; rocket motors; igniters rocket motor; 3/.								
11. Detonating luses, class A, with or without radioactive components								
12. Ammunition for cannon with explosive projectiles, gas projectiles, smoke projectiles, incendiary projectiles, illuminating projectiles, ammunition for small arms with explosive projectiles, incendiary projectiles, rocket ammunition with explosive projectiles, gas projectiles, smoke projectiles, incendiary projectiles, illuminating projectiles, booster (explosive); burstiers (explosive), and supplementary charges (explosive) without detonators; 3/, 4/.								
13. Explosive projectiles: bombs, torpedoes; mines, rifle or hand grenades (explosive); jet thrust units (jet); igniters; jet thrust; rocket motors; igniters rocket motor; 3/.								
14. Detonating luses, class A, with or without radioactive components								
15. Ammunition for cannon with empty, inert-loaded or solid projectiles, or without projectiles, or rocket ammunition with empty projectiles, inert-loaded or solid projectiles or without projectiles.								
16. Propellant explosives, jet thrust units (jet); igniters; jet thrust; rocket motors; rocket engines (liquid), igniters; rocket motor; starter cartridges.								
17. Fireworks, special or railway torpedoes.								
18. Small arms ammunition, or cartridges, practice ammunition.								
19. Primers for cannon or small arms, empty cartridge bags—black powder, igniters, empty cartridge cases, primed, empty grenades, primed, combination primers or percussion caps, toy caps, explosive cable cutters, explosive rivets.								
20. Percussion luses, tracer luses or tracers.								
21. Time, combination or detonating luses.								
22. Cordau detonant luse, safety squibs, luse lighters, luse igniters, delay electric igniters, electric squibs, instantaneous luse or igniter cord.								
23. Fireworks, common.								
24. Blasting agent: blasting agent label.								
25. Flammable liquids or flammable gases: flammable liquid or flammable gas label.								
26. Flammable solids: flammable solid label.								
27. Oxidizer: oxidizer label.								
28. Organic peroxide: organic peroxide label.								
29. Corrosive liquids: corrosive label.								
30. Nonflammable gases: N.F.G. label.								
31. Poisonous gases or liquids in tank car (anis., cylinders, projectiles or bombs): poison gas labels.								
32. Radioactive materials: radioactive label.								

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App.  
A to Part 1)

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L. D. Santman,

*Director, Materials Transportation Bureau.*

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