

CHAPTER 3

INSPECTION OF RAIL SHIPMENTS

NOTES

INSPECTIONS

- * Inspect a railcar in accordance with CFR 49, 174.104 and prepare a railcar certificate.

When rail transportation is used to transport ammunition, precautions must be taken that are not normally taken with other modes of transportation. These precautions are required because rail transportation is normally provided in and through the more rural areas, and the opportunity for theft, sabotage, and accidents are more probable. In order to inspect a railcar to ensure it meets all of the requirements in CFR 49, or NAVSEA OP 3681 (when shipping items for the Navy), and AMC-R 385-100, a person needs special training. As military ammunition inspectors, you can perform the inspection of railcars, but in most cases you must have the senior QASAS to sign the car certification.

When transporting ammunition by rail, there is more than one option as to the method used for loading a railcar. These options are listed below.

TRAILER ON FLAT CAR (TOFC) This is a method used for ammunition and explosives to be transported part of the way to its destination by rail, and the remainder by road. The trailer is loaded, blocked, and braced on a trailer, and then sealed at the ammunition storage facility of the shipment's origin. The trailer is then transported by road to the rail head where it is further loaded and secured on top of a rail flat car.

Using this method, the trailer must be inspected prior to the ammunition being loaded, then after loading, transported to the railhead. Prior to loading the trailer on the flatcar, the flatcar must be inspected to ensure it meets the same criteria as set forth for other railcars.

CONEX ON FLAT CAR (COFC) This method is basically the same as (TOFC), except instead of using trailers, Conexes, or ISO containers are used. The same procedures are followed for rail shipments and for the inspection of containers.

In the following pages, there will be examples of methods to follow when inspecting rail transportation. Remember, rail cars must be inspected prior to loading and offloading at their destination.

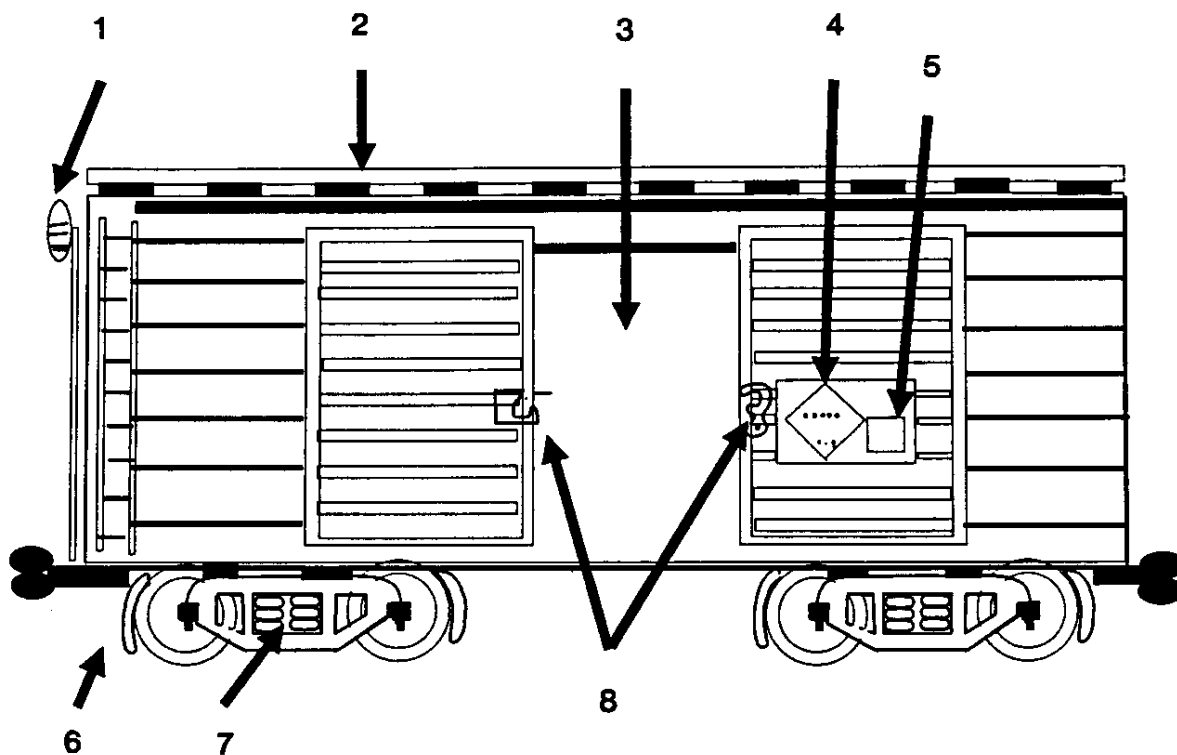
Figure 3-1. RAIL CAR INSPECTION POINTS

Figure 3-2 RAIL FLAT CAR (LOADED)

Figure 3-3. RAIL CAR INSPECTION REPORT

Figure 3-4. RAIL CAR CERTIFICATE

RAILCAR INSPECTION POINTS



- | | |
|------------------------|------------------------------|
| 1. Air and Hand Brakes | 6. Brakes |
| 2. Roof and Catwalk | 7. Trucks and Brakes |
| 3. Cargo space | 8. Seals and locking devices |
| 4. Explosive Placard | |
| 5. Car Certificate | |

Figure 3-1
RAIL CAR INSPECTION POINTS

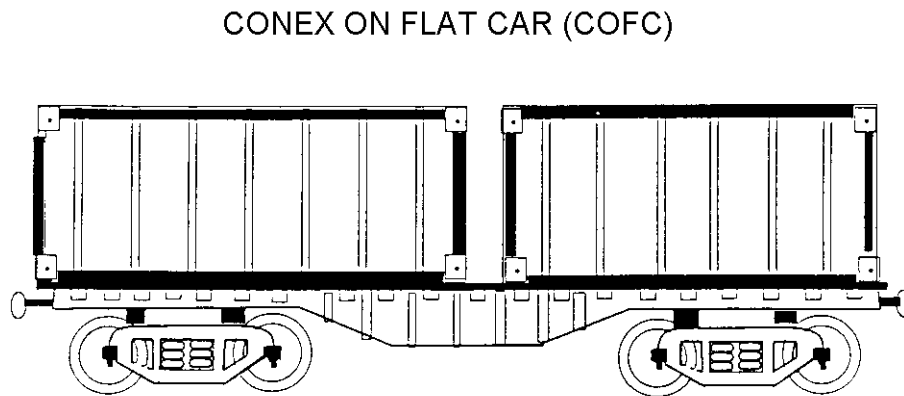
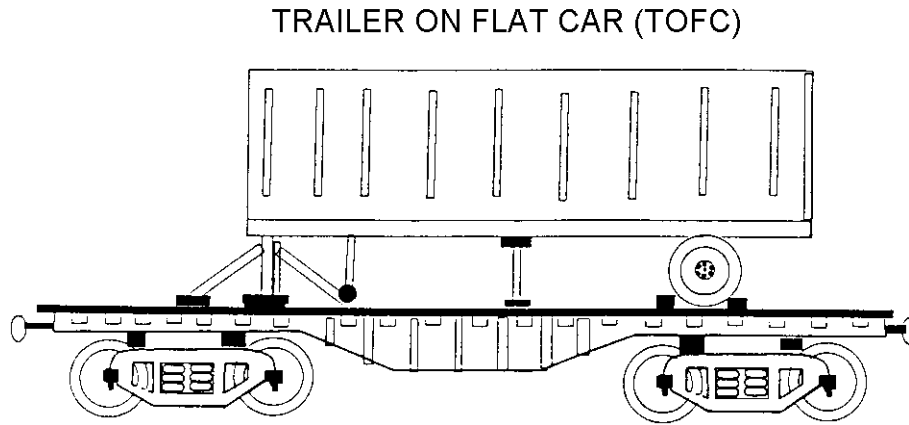


Figure 3-2. RAIL FLAT CAR (LOADED)

RAILCAR INSPECTION
Transporting Explosive Class A (1.1, 1.2)

GBL NO:		ORIGIN:		DESTINATION		
INSTALLATION/ACTIVITY						
DATE:						
TYPE OF CAR <input type="checkbox"/> BOX <input type="checkbox"/> TOFC <input type="checkbox"/> OPEN TOP <input type="checkbox"/> COFC		CAR NO:		TRAILER OR CONTAINER NO:		
NOTE: All of the following items must be checked on empty equipment prior to loading. Items with an asterisk (*) shall be checked on incoming loaded equipment.						
ITEM No.	Check appropriate column	ORIGIN		DESTINATION		REMARKS
		SAT	UNSAT	SAT	UNSAT	
1 *	Car Certified By Carrier					
2	Air and hand brakes					
3	Brake shoes					
4	Roller bearings					
5 *	Trucks and springs					
6	Metal sub-floor/spark shields					
7	Floor lining and roof					
8	Cargo space					
9	Doors and fasteners					
10	Loading devices secured					
11	No prohibited equipment					
12 *	Any other defects					
<input type="checkbox"/> APPROVED If rejected give reason under		Signature (Inspector @ Origin)		Signature (Inspector @ Destination)		
<input type="checkbox"/> REJECTED remarks.						
ITEMS TO BE CHECKED ON LOADED RAILCAR						
13 *	Mixture of material in accordance with DOT Regs					
14 *	Weight properly distributed & load properly secured					
15	Car Certificate correctly executed and applied					
16 *	Explosive placard applied (1.1, 1.2)					
17 *	Seals and locking devices applied					
18	Shipment made under DOT Regs					
Signature of inspector (origin)			Signature of inspector (destination)			

Figure 3-3. RAIL CAR INSPECTION REPORT

EXPLANATORY NOTES
FOR COMPLETING THE RAIL CAR INSPECTION

GBL NO: Enter the prefix symbol and the serial number of the bill of lading.

INSTALLATION/ACTIVITY: Enter the name of the installation of origin and destination.

DATE: Enter day, month, and year of inspection.

TYPE OF CAR: Check the appropriate type of car.

CAR NO: Enter the reporting marks and number of the rail car.

TRAILER OR CONTAINER NO(S): Enter the identification number of each trailer (or truck body) or freight container (MILVAN) loaded and secured.

#1. CAR CERTIFIED BY CARRIER: The rail car offered for loading (or delivered for unloading) has been examined by the carrier and correctly certified.

#2. AIR AND HAND BRAKES: The rail car must be equipped with air and hand brakes systems that are complete and in working conditions. Testing or exercise of the system is not required, unless the rail car is furnished by DOD.

#3. BRAKE SHOES: High friction composition brake shoes are required, except that metal deck TOFC/COFC flat cars may have high phosphorus cast iron brake shoes. Each shoe must be at least three-eighths inch thick and in serviceable condition.

#4. ROLLER BEARINGS: Check to confirm that the rail car furnished by the carrier is equipped with roller bearings. Journal boxes (friction type) are not permitted for Class A shipments.

#5. TRUCKS AND SPRINGS: Visually determine the general condition of the trucks, springs, and wheels. Examine for missing, cracked, broken, or otherwise physically impaired components and conditions that give evidence of malfunction.

#6. METAL SUBFLOOR/SPARK SHIELD: The rail car must have either a metal subfloor with no combustible material exposed beneath the car, or metal spark shields that extend from center sill to side, and from end sills to at least 12 inches beyond the extreme treads of the inside of each truck. The shield must be tightly fitted against the subfloor. Accumulations of oil, grease or other combustible debris are not permitted.

#7. FLOOR, LINING, ROOF: Holes or cracks through which sparks can enter are not permitted, along with unprotected decayed spots that can hold sparks. Protruding nails, bolts, or exposed pieces of metal that interfere with the lading must be removed. Protruding nails that fasten the floor or lining must be drawn and new nails applied. Metal floor plates must be suitably covered with wood, plywood, or fiber/composition sheets except for carload shipments

or explosives that are not liable to leakage of dust, powder, or vapor that might cause an explosion.

#8. CARGO SPACE: The rail car must be swept out before loading and all debris/dunnage removed.

#9. DOORS AND FASTENERS: Doors must close tightly to prevent entry of sparks. Stripping, if necessary, will be fastened to door frames so that doors when closed will fit against the stripping. Wedges in shoes or keepers may be used to press the closed door against stripping. Fasteners and door hardware must be complete and in proper condition for service.

#10. LOADING DEVICES SECURED: Components of mechanical dunnage/securement systems that are not used in the loading must remain as part of the equipment assigned to the transport vehicles and be properly secured.

#11. NO PROHIBITED EQUIPMENT: The rail car cannot be equipped with any type of lighted heater or open flame device, or electric devices having exposed heating coils, or any apparatus or mechanism utilizing an internal combustion engine in its operation.

#12. ANY OTHER DEFECT: Includes any defect that violates regulatory criteria, other than the above, that causes rejection of the carrier furnished. Coupling and hoses must be in working order. Hoses should not be longer than 22 inches.

#13. MIXTURE OF MATERIALS: Check for compliance with 49 CFR Part 174.

#14. WEIGHT PROPERLY DISTRIBUTED & LOAD SECURED: Weight of lading must not exceed car limit, and be approximately equal from side to side and over the trucks. Loading must be in accordance with approved military specs, drawings, and MIL-STDS.

#15. CAR CERTIFICATE CORRECTLY EXECUTED AND APPLIED: Examine certificates for correct and complete execution by the carrier and the shipper as applicable to the service performed and the equipment involved.

#16. EXPLOSIVE PLACARDS APPLIED: Confirm that the placards required for the load, the trailers, or the container are correct and have been properly applied.

#17. SEALS AND LOCKING DEVICES APPLIED: The car must be sealed as required and notices annotated on the GEL. Cable seal locks, wire twists, or other locking devices required by the sponsoring military services have been applied.

#18. SHIPMENT MADE UNDER DOT E-868: Indicate that shipment of classified explosives has been made when applicable. Confirm the certification shows the application of the exemption when used.

.....RAILROAD

Car Certificate

No. 1..... Station.....
19.....

I hereby certify that I have this day personally examined Car Number..... and that the car is in condition for service and complies with the FRA Freight Car Safety Standards (49 CFR Part 215) and with the requirements for freight cars used to transport explosives prescribed by the DOT Hazardous Materials Regulations (49 CFR Part 174).

.....
Qualified Person Designated Under 49 CFR 215.11

No. 2..... Station.....
19.....

I have this day personally examined the above car and hereby certify that the explosives in or on this car, or in or on vehicles or in containers have been loaded and braced; that placards have been applied, according to the regulations prescribed by the Department of Transportation; and that the doors of cars so equipped fit or have been stripped so that sparks can not enter.

.....
Shipper or his authorized agent

Qualified Person Designated Under 49 CFR 215.11

No. 3..... Station.....
19.....

I hereby certify that I have this day personally supervised the loading of the vehicles or containers on and their securement to the above car.

.....
Shipper or railway employee inspecting loading and securement

Note 1: A shipper must decline to use a car not in proper condition.
Note 2: All certificates, where applicable, must be signed.

Figure 3-4. RAIL CAR CERTIFICATE

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Part 174—Carriage by Rail**Subpart A—General Requirements**

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- 174.700 Special handling requirements for Class 7 (radioactive) materials.
 174.705 Removed.
 174.715 Cleanliness of transport vehicles after use.
 174.750 Incidents involving leakage.

AUTHORITY: 49 U.S.C. 5101-5127; 49 CFR 1.53.

SOURCE: Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, unless otherwise noted.

EDITORIAL NOTE: For nomenclature changes to Part 174, see 50 FR 45731, Nov. 1, 1985.

Subpart A—General Requirements**§174.1 Purpose and scope.**

This part prescribes requirements in addition to those contained in parts 171, 172, 173, and 179 of this subchapter, to be observed with respect to the transportation of hazardous materials in or on rail cars.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-74, 58 FR 51533, Oct. 1, 1993]

§174.3 Unacceptable hazardous materials shipments.

No person may accept for transportation or transport by rail any shipment of hazardous material that is not in conformance with the requirements of this subchapter.

[Amdt. 174-83, 61 FR 28677, June 5, 1996]

§174.5 Carrier's materials and supplies.

This subchapter applies to the transportation of a carrier's materials and supplies moving by rail, except that the shipper's certification is not required when these materials and supplies are being transported by the carrier who owns them. The requirements of this subchapter do not apply to railway torpedoes or fuses when carried in engines or rail cars. Railway torpedoes must be in closed metal boxes when not in use.

[Amdt. 174-26B, 41 FR 57071, Dec. 30, 1976]

§174.9 Inspection and acceptance.

At each location where a hazardous material is accepted for transportation or placed in a train, the carrier shall inspect each rail car

containing the hazardous material, at ground level, for required markings, labels, placards, securement of closures and leakage. This inspection may be performed in conjunction with inspections required under parts 215 and 232 of this title.

[Amdt. 174-83, 61 FR 28677, June 5, 1996]

§174.14 Movements to be expedited.

(a) A carrier must forward each shipment of hazardous materials promptly and within 48 hours (Saturdays, Sundays, and holidays excluded), after acceptance at the originating point or receipt at any yard, transfer station, or interchange point, except that where bi-weekly or weekly service only is performed, a shipment of hazardous materials must be forwarded on the first available train.

(b) A tank car loaded with any Division 2.1 (flammable gas), Division 2.3 (poisonous gas) or Class 3 (flammable liquid) material, may not be received and held at any point, subject to forwarding orders, so as to defeat the purpose of this section or of § 174.204 of this subchapter.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52677, Dec. 21, 1990]

§174.16 Removal and disposition of hazardous materials at destination.

(a) *Delivery at non-agency stations.* A shipment of Class 1 (explosive) materials may not be unloaded at non-agency stations unless the consignee is there to receive it or unless properly locked and secure storage facilities are provided at that point for its protection. If delivery cannot be so made, the shipment must be taken to next or nearest agency station for delivery.

(b) *Delivery at agency stations.* A carrier shall require the consignee of each shipment of hazardous materials to remove the shipment from carrier's property within 48 hours (exclusive of Saturdays, Sundays, and holidays) after notice of arrival has been sent or given. If not so removed, the carrier shall immediately dispose of the shipments as follows:

(1) *Division 1.1 or 1.2 (Class A explosive) materials:* If safe storage is available, by storage at the owner's expense; if safe storage is

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not available, by return to the shipper, sale, or destruction under supervision of a competent person; or if safety requires, by destruction under supervision of a competent person.

(2) *Hazardous materials, except Division 1.1 or 1.2 (Class A explosive) materials, in car-load shipments:* By storage on the carrier's property; by storage on other than the carrier's property, if safe storage on the carrier's property is not available; or by sale at expiration of 15 calendar days after notice of arrival has been sent or given to the consignee, provided the consignor has been notified of the non-delivery at the expiration of a 48-hour period and orders for disposition have not been received.

(3) *Hazardous materials, except Division 1.1 or 1.2 (Class A explosive) materials, in less-than-carload shipments:* By return to the shipper if notice of non-delivery was requested and given the consignor as prescribed by the carrier's tariff, and orders for return to shipper have been received; by storage on the carrier's property; by storage on other than the carrier's property, if safe storage on carrier's property is not available; or by sale at expiration of 15 calendar days after notice of arrival has been sent or given to the consignee, provided the consignor has been notified of non-delivery at expiration of a 48-hour period and orders for disposition have not been received.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52677, Dec. 21, 1990]

§174.20 Local or carrier restrictions.

(a) When local conditions make the acceptance, transportation, or delivery of hazardous materials unusually hazardous, local restrictions may be imposed by the carrier.

(b) Each carrier must report to the Bureau of Explosives for publication the full information as to any restrictions which it imposes against the acceptance, delivery, or transportation of hazardous materials, over any portion of its lines under this section.

Subpart B—General Operating Requirements**§174.24 Shipping papers.**

A person may not accept or transport a hazardous material by rail unless that person receives a shipping paper that properly conveys the information required by part 172 of this subchapter. Only an initial carrier within the United States must receive and retain a copy of the shipper's certification as required by § 172.204 of this subchapter. This section does not apply to a material that is excepted from shipping paper requirements as specified in § 172.200 of this subchapter.

[Amdt. 174-83, 61 FR 28677, June 5, 1996, as amended by Amdt. 174-83, 61 FR 50255, Sept. 25, 1996]

§174.26 Notice to train crews of placarded cars.

(a) The train crew must have a document that reflects the current position in the train of each rail car containing a hazardous material. The train crew must update the document to indicate changes in the placement of a rail car within the train. For example, the train crew may update the document by handwriting on it or by appending or attaching another document to it.

(b) A member of the crew of a train transporting a hazardous material must have a copy of a document for the hazardous material being transported showing the information required by part 172 of this subchapter.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-26B, 41 FR 57071, Dec. 30, 1976; Amdt. 174-68, 55 FR 52678, Dec. 21, 1990; 61 FR 28666, June 05, 1996; 62 FR 1217, January 08, 1997]

§174.50 Nonconforming or leaking packages.

Leaking packages other than tank cars may not be forwarded until repaired, reconditioned, or overpacked in accordance with § 173.3 of this subchapter. Except as otherwise provided in this section, a tank car that no longer conforms to this subchapter may not be forwarded unless repaired or approved for movement by the Associate Administrator for

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Safety, Federal Railroad Administration. Notification and approval must be furnished in writing, or through telephonic or electronic means with subsequent written confirmation provided within two weeks. For the applicable address and telephone number, see part 107, subpart B, Appendix A, of this chapter. A leaking tank car containing a hazardous material may be moved without repair or approval only so far as necessary to reduce or eliminate an immediate threat of harm to human health or the environment when it is determined its movement would provide greater safety than allowing the car to remain in place. In the case of a liquid leak, measures must be taken to prevent the spread of the liquid.

[Amdt. 174-83, 61 FR 28677, June 5, 1996]

Subpart C—General Handling and Loading Requirements

§174.55 General requirements.

(a) Each package containing a hazardous material being transported by rail in a freight container or transport vehicle must be loaded so that it cannot fall or slide and must be safeguarded in such a manner that other freight cannot fall onto or slide into it under conditions normally incident to transportation. When this protection cannot be provided by using other freight, it must be provided by blocking and bracing. For examples of blocking and bracing in freight containers and transport vehicles, see Bureau of Explosives Pamphlet Nos. 6 and 6C.

(b) Each package containing a hazardous material bearing package orientation markings prescribed in § 172.312 of this subchapter must be loaded within a transport vehicle or freight container to remain in the correct position indicated by those markings during transportation.

(c) The doors of a freight container or transport vehicle may not be used to secure a load that includes a package containing a hazardous material unless the doors meet the design strength requirements of Specification M-930 (for freight containers) and M-931 (for trailers) in the AAR's Manual of Standards and Recommended Practices and the load is also

within the limits of the design strength requirements for the doors.

[Amdt. 174-83, 61 FR 28677, June 5, 1996]

§174.57 Cleaning cars.

All hazardous material which has leaked from a package in any rail car or on other railroad property must be carefully removed.

§174.59 Marking and placarding of rail cars.

No person may transport a rail car carrying hazardous materials unless it is marked and placarded as required by this subchapter. Placards and car certificates lost in transit must be replaced at the next inspection point, and those not required must be removed at the next terminal where the train is classified. For Canadian shipments, required placards lost in transit, must be replaced either by those required by part 172 of this subchapter or by those authorized under § 171.12a.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-48, 50 FR 41521, Oct. 11, 1985]

§174.61 Transport vehicles and freight containers on flat cars.

(a) A transport vehicle, freight container, or package containing a hazardous material must be designed and loaded so that it will not become damaged to an extent that would affect its integrity under conditions normally incident to transportation. Each unit must be secured on a flatcar so that it cannot permanently change position during transit. Packages of hazardous materials contained therein must be loaded and braced as provided by §§ 174.101, 174.112, 174.115 and 174.55. Placards must be applied when prescribed by part 172 of this subchapter and part 174.

(b) Except as specified in § 173.21, a truck body, trailer, or freight container equipped with heating or refrigerating equipment which has fuel or any article classed as a hazardous material may be loaded and transported on a flat car as part of a joint rail highway movement. The heating or refrigerating equipment is considered to be a part of the truck body or trailer and is not subject to any

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other requirements of this subchapter. The truck body, trailer, or freight container must be secured on the flatcar so that it cannot change position during transit.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-38, 45 FR 32698, May 19, 1980; Amdt. 174-39, 45 FR 81572, Dec. 11, 1980; Amdt. 174-59, 51 FR 5974, Feb. 18, 1986; Amdt. 174-68, 57 FR 45464, Oct. 1, 1992; Amdt. 174-79, 59 FR 64744, Dec. 15, 1994]

§174.63 Portable tanks, IM portable tanks, intermediate bulk containers, cargo tanks, and multi-unit tank car tanks.

(a) A carrier may not transport a bulk packaging (e.g., portable tank, IM portable tank, intermediate bulk container, cargo tank, or multi-unit tank car tank) containing a hazardous material in container-on-flatcar (COFC) or trailer-on-flatcar (TOFC) service except as authorized by this section or unless approved for transportation by the Associate Administrator for Safety, FRA.

(b) A bulk packaging containing a hazardous material (including IM 101 and IM 102 when appropriate according to dimensions and weight distribution) may be transported inside a fully closed transport vehicle or fully closed freight container provided it is properly secured with a restraint system that will prevent it from changing position, sliding into other packages, or contacting the side or end walls (including doors) under conditions normally incident to transportation.

(c) When not transported in conformance with and subject to paragraph (b) of this section, a bulk packaging may be transported in COFC service or TOFC service subject to the following conditions as applicable:

(1) The bulk packaging contains a material packaged in accordance with § 173.240, 173.241, 173.242, or 173.243 of this subchapter;

(2) The tank and flatcar conform to requirements in AAR 600 of the AAR Specifications for Tank Cars, Specification M-1002, entitled "Specifications for Acceptability of Tank Containers";

(3) For TOFC service, the trailer chassis conforms to requirements in paragraphs 3, 4,

5, and 6 of AAR Specification M-943 "Container Chassis For TOFC Service" of the AAR specification for "Specially Equipped Freight Car and Intermodal Equipment";

(4) For COFC service, the container support and securement systems conform to requirements in Specification M-952 "Intermodal Container Support and Securement Systems for Freight Cars", of the AAR specification for "Specially Equipped Freight Car and Intermodal Equipment";

(5) If transported in a well car –

(i) The tank is not in a double-stacked configuration (i.e., no freight container or portable tank is placed above or below the tank); and

(ii) The tank is transported in the well with its outlet valve facing outward towards the end of the well and away from any adjacent tank or container; and

(6) All securement fittings shall be fully engaged and in the locked position, provided; however, if the tank is transported in a well car, it must be loaded into a well appropriate for the length of the container and any void filling device present must be secured in its designed appropriate position.

(d) An approval in effect on February 28, 1991 for the transportation of portable tanks or IM portable tanks in TOFC or COFC service expires on the date stated in the approval letter or June 15, 1995, whichever is later.

(e) A carrier may not transport a cargo tank or multi-unit tank car tank containing a hazardous material in TOFC or COFC service unless approved for such service by the Associate Administrator for Safety, FRA. However, in the event of an accident or incident, no such approval is necessary for the transportation of a cargo tank containing a hazardous material in TOFC service under the following condition(s):

(1) There is an emergency need for the cargo tank in order to mitigate the consequences of an incident; and

(2) Movement of the cargo tank is limited to transportation necessary for emergency purposes.

[Amdt. 174-79, 59 FR 64744, Dec. 15, 1994]

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§174.67 Tank car unloading.

(a) In unloading tank cars, the following rules must be observed (see subpart F of this part for gases):

(1) Unloading operations must be performed only by reliable persons properly instructed in unloading hazardous materials and made responsible for careful compliance with this part.

(2) Brakes must be set and wheels blocked on all cars being unloaded.

(3) Caution signs must be so placed on the track or cars to give necessary warning to persons approaching the cars from the open end of a siding and must be left up until after the cars are unloaded and disconnected from the discharge connection. The signs must be of metal or other comparable material, at least 30 cm (12 inches) high by 38 cm (15 inches) wide in size, and bear the words, "STOP-Tank Car Connected", or "STOP-Men at Work", the word "STOP" being in letters at least 10 cm (3.9 inches) high and the other words in letters at least 5 cm (2 inches) high. The letters must be white on a blue background.

(4) Before a manhole cover or outlet valve cap is removed from a tank car, the car must be relieved of all interior pressure by cooling the tank with water or by venting the tank by raising the safety valve or opening the dome vent at short intervals. However, if venting to relieve pressure will cause a dangerous amount of vapor to collect outside the car, venting and unloading must be deferred until the pressure is reduced by allowing the car to stand overnight or otherwise cooling the contents. These precautions are not necessary when the car is equipped with a manhole cover which hinges inward or with an inner manhole cover which does not have to be removed to unload the car, and when pressure is relieved by piping vapor into a condenser or storage tank.

(b) After the pressure is released, the seal must be broken and the manhole cover removed as follows:

(1) *Screw type.* The cover must be loosened by placing a bar between the manhole cover lug and knob. After two complete turns, so that vent openings are exposed, the operation must be stopped, and if there is any sound of

escaping vapor, the cover must be screwed down tightly and the interior pressure relieved as prescribed in paragraph (a)(4) of this section, before again attempting to remove the cover.

(2) *Hinged and bolted type.* All nuts must be unscrewed one complete turn, after which same precautions as prescribed for screw type cover must be observed.

(3) *Interior type.* All dirt and cinders must be carefully removed from around the cover before the yoke is unscrewed.

(c) When the car is unloaded through a bottom outlet valve, the manhole cover must be adjusted as follows:

(1) *Screw type.* The cover must be put in place, but not entirely screwed down, so that air may enter the tank through the vent holes in threaded flange of the cover.

(2) *Hinged and bolted type.* A non-metallic block must be placed under one edge of the cover.

(3) *Interior type.* The screw must be tightened up in the yoke so that the cover is brought up within one-half inch of the closed position.

(d) When unloading through the bottom outlet of a car equipped with an interior manhole type cover, and in each case where unloading is done through the manhole (unless a special cover with a safety vent opening and a tight connection for the discharge outlet is used), the manhole must be protected by asbestos or metal covers against the entrance of sparks or other sources of ignition of vapor, or by being covered and surrounded with wet burlap or similar cloth material. The burlap or other cloth must be kept damp by the replacement or the application of water as needed.

(e) Seals or other substances must not be thrown into the tank and the contents may not be spilled over the car or tank.

(f) The valve rod handle or control in the dome must be operated several times to see that outlet valve in bottom of tank is on its seat before valve cap is removed.

(g) The valve cap, or the reducer when a large outlet is to be used, must be removed with a suitable wrench after the set screws are loosened and a pail must be placed in po-

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sition to catch any liquid that may be in the outlet chamber. If the valve cap or reducer does not unscrew easily, it may be tapped lightly with a mallet or wooden block in an upward direction. If leakage shows upon starting the removal, the cap or reducer may not be entirely unscrewed. Sufficient threads must be left engaged and sufficient time allowed to permit controlled escape of any accumulation of liquid in the outlet chamber. If the leakage stops or the rate of leakage diminishes materially, the cap or reducer may be entirely removed. If the initial rate of leakage continues, further efforts must be made to seat the outlet valve (see paragraph (f) of this section). If this fails, the cap or reducer must be screwed up tight and the tank must be unloaded through the dome. If upon removal of the outlet cap the outlet chamber is found to be blocked with frozen liquid or any other matter, the cap must be replaced immediately and a careful examination must be made to determine whether the outlet casting has been cracked. If the obstruction is not frozen liquid, the car must be unloaded through the dome. If the obstruction is frozen liquid and no crack has been found in the outlet casting, the car may, if circumstances require it, be unloaded from the bottom by removing the cap and attaching unloading connections immediately. Before opening the valve inside the tank car, steam must be applied to the outside of the outlet casting or wrap casting with burlap or other rags and hot water must be applied to melt the frozen liquid.

(h) Unloading connections must be securely attached to unloading pipes on the dome or to the bottom discharge outlets before any discharge valves are opened.

(i) Tank cars may not be allowed to stand with unloading connections attached after unloading is completed. Throughout the entire period of unloading, and while car is connected to unloading device, the car must be attended by the unloader.

(j) If necessary to discontinue unloading a tank car for any reason, all unloading connections must be disconnected. All valves must first be tightly closed, and the closures of all other openings securely applied.

(k) As soon as a tank car is completely unloaded, all valves must be made tight by the use of a bar, wrench or other suitable tool, the unloading connections must be removed and all other closures made tight.

(l) Railroad defect cards may not be removed.

(m) If oil or gasoline has been spilled on the ground around connections, it must be covered with fresh, dry sand or dirt.

(n) All tools and implements used in connection with unloading must be kept free of oil, dirt, and grit.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-43, 48 FR 27699, June 16, 1983; Amdt. 174-68, 55 FR 52678, Dec. 21, 1990; 56 FR 66280, Dec. 20, 1991; Amdt. 174-81, 60 FR 49111, Sept. 21, 1995; Amdt. 174-83, 61 FR 28678, June 5, 1996]

§174.81 Segregation of hazardous materials.

(a) This section applies to materials which meet one or more of the hazard classes defined in this subchapter and are in packages which are required to be labeled or placarded under the provisions of part 172 of this subchapter.

(b) When a rail car is to be transported by vessel, other than a ferry vessel, hazardous materials on or within that rail car must be stowed and segregated in accordance with § 176.83(b) of this subchapter.

(c) In addition to the provisions of paragraph (d) of this section, cyanides or cyanide mixtures may not be loaded or stored with acids.

(d) Hazardous materials may not be loaded, transported, or stored together, except as provided in this section, and in accordance with the following Table:

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SEGREGATION TABLE FOR HAZARDOUS MATERIALS

Class or Division	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 liq- uids PG I Zone A	7	8 liquids only
Explosives	1.1 and 1.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3	.	.	.	.	.	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.4	.	.	.	.	.	O	O	O	O	O	O	O	O	O	O	O	O	O
Very insensitive explosives	1.5 A	.	.	.	.	.	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives	1.6	.	.	.	.	.	X	X	X	X	X	X	X	X	X	X	X	X	X
Flammable gases	2.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Non-toxic, non-flammable gases	2.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Poisonous gas Zone A	2.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Poisonous gas Zone B	2.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Flammable liquids	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Flammable solids	4.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Spontaneously combustible materials	4.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dangerous when wet materials	4.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oxidizers	5.1 A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Organic peroxides	5.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Poisonous liquids PG I Zone A	6.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Radioactive materials	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Corrosive liquids	8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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(e) Instructions for using the segregation table for hazardous materials in paragraph (d) of this section 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 rail car 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 rail car 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 carload 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 "*" 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 second column of the Table means that, notwithstanding the requirements of the letter "X", ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (Class A explosive) or Division 1.5 (blasting agents) 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 by 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 as-

phyxiant gases, or formation of corrosive or unstable materials.

(f) Class 1 (explosive) materials may not be loaded, transported, or stored together, except as provided in this section, and in accordance with the following Table:

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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
B	X	X											4/5
C	X	X	X										4/5
D	X	4	2	2									4/5
E	X	X	2	2	X								4/5
F	X	X	X	X	X	X							4/5
G	X	X	X	X	X	X	X						4/5
H	X	X	X	X	X	X	X	X					4/5
J	X	X	X	X	X	X	X	X	X				4/5
K	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
N	X	X	X	X	X	X	X	X	X	X	X		4/5
S	X	X	X	X	X	X	X	X	X	X	X		4/5

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(g) Instructions for using the compatibility table for Class 1 (explosive) materials in paragraph (f) of this section 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 rail car, unless packed in separate freight containers (e.g., two or more freight containers mounted upon the same rail car).

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

(i) "1" means explosives from compatibility group L may only be carried on the same rail car with an identical explosive.

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

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

(iv) "4" means detonators and detonating primers, Division 1.4S (Class C explosives), may not be loaded in the same car with Division 1.1 and 1.2 (Class A explosive) materials.

(v) "5" means Division 1.4S fireworks may not be loaded in the same car with Division 1.1 or 1.2 (Class A explosive) materials.

(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 (Class A explosive) materials and Division 1.4 (Class C explosive) materials, compatibility group D, must be transported as Division 1.2 (Class A explosive) materials.

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

[Amdt. 174-68, 55 FR 52678, Dec. 21, 1990, as amended at 56 FR 66280-66281, Dec. 20, 1991; 57

FR 45464, Oct. 1, 1992; Amdt. 174-68, 57 FR 59310, Dec. 15, 1992; Amdt. 174-75, 58 FR 50237, Sept. 24, 1993; Amdt. 174-83, 61 FR 51339, Oct. 1, 1996]

Subpart D—Handling of Placarded Rail Cars, Transport Vehicles and Freight Containers

§174.82 General requirements for the handling of placarded rail cars, transport vehicles, freight containers, and bulk packages.

(a) Unless otherwise specified, this subpart does not apply to the handling of rail cars, transport vehicles, freight containers, or bulk packagings, which contain Division 1.6, combustible liquids, Division 6.1 PG III materials, Class 9 materials, or ORM-D materials.

(b) A placarded rail car, transport vehicle, freight container, or bulk package may not be transported in a passenger train.

[Amdt. 174-68, 55 FR 52680, Dec. 21, 1990, as amended at 56 FR 66281, Dec. 20, 1991; 57 FR 45464, Oct. 1, 1992; Amdt. 174-74, 58 FR 51533, Oct. 1, 1993]

§174.83 Switching placarded rail cars, transport vehicles, freight containers, and bulk packagings.

(a) In switching operations where the use of hand brakes is necessary –

(1) It must be determined by trial whether a loaded, placarded car, or a car occupied by a rider in a draft containing a placarded car, has its hand brakes in proper working condition before it is cut off;

(2) A loaded, placarded tank car or a draft which includes a loaded placarded tank car may not be cut off until the preceding rail car clears the ladder track; and

(3) A loaded, placarded tank car or a draft which includes a loaded placarded tank car must clear the ladder track before another rail car is allowed to follow.

(b) Any loaded rail car placarded for a Division 1.1 or Division 1.2 explosive, a Division 2.3 Hazard Zone A gas or a Division 6.1 PG I Hazard Zone A material, or a Class DOT 113 tank car displaying a Division 2.1 (flammable gas) placard, including a Class DOT 113 tank car containing only a residue of a Division 2.1 material, may not be:

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- (1) Cut off while in motion;
- (2) Coupled into with more force than is necessary to complete the coupling; or
- (3) Struck by any car moving under its own momentum.

(c) A placarded flatcar, or a flatcar carrying a placarded transport vehicle, freight container, or bulk packaging under this subchapter may not be cut off while in motion.

(d) No rail car moving under its own momentum may be permitted to strike any placarded flatcar or any flatcar carrying a placarded transport vehicle, freight container, or bulk packaging.

(e) No placarded flatcar or any flatcar carrying a placarded transport vehicle, freight container, or bulk packaging may be coupled into with more force than is necessary to complete the coupling.

(f) When transporting a rail car, transport vehicle, or freight container placarded for Division 1.1 or 1.2 (Class A explosive) materials in a terminal, yard, or on a side track or siding, the placarded rail car must be separated from the engine by at least one non-placarded rail car and must be placed in a location so that it will be safe from danger of fire. A rail car, transport vehicle, or freight container placarded for Division 1.1 or 1.2 (Class A explosive) materials may not be placed under a bridge or overhead crossing, or in or alongside a passenger shed or station, except during transfer operations.

[Amdt. 174-68, 55 FR 52680, Dec. 21, 1990, as amended at 56 FR 66281, Dec. 20, 1991; Amdt. 174-75, 58 FR 50237, Sept. 24, 1993; Amdt. 174-77, 59 FR 48549, Sept. 21, 1994; Amdt. 174-83, 61 FR 51339, Oct. 1, 1996]

§174.84 Position in train of loaded placarded rail cars, transport vehicles, freight containers or bulk packagings when accompanied by guards or technical escorts.

A rail car placarded in Division 1.1 or 1.2 (Class A explosive); Division 2.3 (Hazard Zone A; poisonous gas); or Division 6.1 (PG I. Hazard Zone A; poisonous liquid) in a moving or standing train must be next to and ahead of any car occupied by the guards or technical escorts accompanying the placarded rail car. However, if a rail car occupied by the guards or technical escorts has temperature control equipment in operation, it must be the fourth car behind any car requiring Division 1.1 or 1.2 (Class A explosive) placards.

[Amdt. 174-68, 55 FR 52680, Dec. 21, 1990, as amended at 56 FR 66281, Dec. 20, 1991]

§174.85 Position in train of placarded cars, transport vehicles, freight containers, and bulk packagings.

(a) Except as provided in paragraphs (b) and (c) of this section, the position in a train of each loaded placarded car, transport vehicle, freight container, and bulk packaging must conform to the provisions of this section.

(b) A car placarded "RADIOACTIVE" must comply with train positioning requirements of paragraph (d) of this section and must be separated from a locomotive, occupied caboose, or carload of undeveloped film by at least one non-placarded car.

(c) A tank car containing the residue of a hazardous material must be separated from a locomotive or occupied caboose by at least one rail car other than a placarded tank car.

(d) Position of rail cars in a train. In the following table:

POSITION IN TRAIN OF PLACARDED CARS TRANSPORTING HAZARDOUS MATERIALS

RESTRICTIONS	Placard Group 1	Placard Group 2		Placard Group 3		Placard Group 4
	Rail Car	Tank Car	Rail Car	Tank Car	Rail Car	Rail Car
1. When train length permits, placarded car may not be nearer than the sixth car from the engine or occupied caboose.	X	X		X		

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POSITION IN TRAIN OF PLACARDED CARS TRANSPORTING HAZARDOUS MATERIALS —CONTINUED

RESTRICTIONS	Placard Group 1	Placard Group 2		Placard Group 3		Placard Group 4
	Rail Car	Tank Car	Rail Car	Tank Car	Rail Car	Rail Car
2. When train length does not permit, placarded car must be placed near the middle of the train, but not nearer than the second car from an engine or occupied caboose.	X	X		X		
3. A placarded car may not be placed next to an open-top car when any of the lading in the open top car protrudes beyond the car ends, or if the lading shifted, would protrude beyond the car ends.	X	X		X		
4. A placarded car may not be placed next to a loaded flat car, except closed TOFC/COFC equipment, auto carriers, and other specially equipped cars with tie-down devices for securing vehicles. Permanent bulk head flat cars are considered the same as open-top cars.	X	X		X		
5. A placarded car may not be placed next to any transport vehicle or freight container having an internal combustion engine or an open-flame device in operation.	X	X		X		
6. Placarded cars may not be placed next to each other based on the following:						
Placard Group 1.....		X	X	X	X	X
Placard Group 2.....	X			X	X	X
Placard Group 3.....	X	X	X			X
Placard Group 4.....	X	X	X	X	X	

PLACARD GROUP:

- Group 1—Divisions 1.1 and 1.2 (Class A explosive) materials.
- Group 2—Divisions 1.3, 1.4, 1.5 (Class B and C explosive), Class 2 (compressed gas; other than Div 2.3, PG I, Zone A), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), Class 6 (poisonous liquid; other than Div 6.1, PG I, Zone A), and Class 8 (corrosive) materials.
- Group 3—Divisions 2.3 (PG I, Zone A; poisonous gas) and 6.1 (PG I, Zone A; poisonous liquid) materials.
- Group 4—Class 7 (radioactive) materials.

(1) Where an "X" appears at the intersection of a Placard Group column and a Restriction row, the corresponding restriction applies.

(2) "Rail Car" means a car other than a tank car.

(3) For purposes of this subpart, each unit of an articulated intermodal rail car shall be considered as one car.

[Amdt. 174-68, 55 FR 52680, Dec. 21, 1990, as amended at 57 FR 45464, Oct. 1, 1992; Amdt. 174-83, 61 FR 28678, June 5, 1996; Amdt. 174-83, 61 FR 50255, Sept. 25, 1996; Amdt. 174-83, 61 FR 51339, Oct. 1, 1996]

§174.86 Maximum allowable operating speed.

For molten metals and molten glass shipped in packaging other than those pre-

scribed in § 173.247 of this subchapter, the maximum allowable operating speed may not exceed 15 mph for shipments by rail.

[Amdt. 174-69, 56 FR 49990, Oct. 2, 1991]

Subpart E—Class I (Explosive) Materials

§174.101 Loading Class 1 (explosive) materials.

(a) Boxes containing Division 1.1 or 1.2 (Class A explosive) materials must be loaded so that the ends of wooden boxes will not bear against sides of any fiberboard boxes and so that the ends of any box will not cause a pressure point on a small area of another box.

(b) Explosive bombs, unfuzed projectiles, rocket ammunition and rocket motors, Division 1.1, 1.2, or 1.3 (Class A or Class B explo-

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sive) materials, which are not packed in wooden boxes, or large metal packages of incendiary bombs, each weighing 226 kg (500 pounds) or more, may be loaded in stock cars or in flat bottom gondola cars only if they are adequately braced. Boxed bombs, rocket ammunition and rocket motors, Division 1.1, 1.2, or 1.3 (Class A or Class B explosive) materials, which due to their size cannot be loaded in closed cars, may be loaded in open-top cars or on flatcars, provided they are protected from the weather and accidental ignition.

(c) Boxes of Division 1.1 or 1.2 (Class A explosive) materials packed in long cartridges, bags, or sift-proof liners, and containing no liquid explosive ingredient, may be loaded on their sides or ends.

(d) Division 1.1 or 1.2 (Class A explosive) materials may not be loaded higher than any permanent car lining unless additional lining is provided as high as the lading.

(e) When the lading of a car includes any Class 1 (explosive) materials, the weight of the lading must be distributed insofar as possible to equalize the weight on each side of the car and over the trucks.

(f) Except when boxed, metal kegs containing Class 1 (explosive) materials must be loaded on their sides with their ends toward the ends of the car. Packages of Class 1 (explosive) materials may not be placed in the space opposite the doors unless the doorways are boarded on the inside as high as the lading. This paragraph does not apply to palletized packages if they are braced so they cannot fall or slide into the doorways during transportation.

(g) Wooden kegs, fiber kegs, barrels, and drums must be loaded on their sides or ends, to best suit the conditions.

(h) Packages containing any Division 1.1 or 1.2 (Class A explosive) materials for (see § 174.104), detonators, detonator assemblies, or boosters with detonators must be securely blocked and braced to prevent the packages from changing position, falling to the floor, or sliding into each other, under conditions normally incident to transportation. Class 1 (explosive) materials must be loaded so as to avoid transfer at stations. For recommended methods of blocking and bracing, see Bureau

of Explosives Pamphlets No. 6 and 6A. Heavy packages or containers must be trucked, rolled, or moved by skids, fork trucks, or other handling devices and may not be dropped from trucks, platforms, or cars. Planks for rolling trucks from platforms to cars must have beveled ends. Loading platforms and the shoes of each workman must be free from grit. All possible precautions must be taken against fire. Class 1 (explosive) materials must be kept in a safe place and inaccessible to unauthorized persons while being held by a carrier for loading or delivery.

(i) To prevent delays of local freight trains, when there are shipments of Class 1 (explosive) materials for different destinations loaded in a "peddler car" or "way car" the shipment for each destination must be stayed separately.

(j) Forwarding and transfer stations for Class 1 (explosive) materials must be provided with the necessary materials for staying.

(k) Shippers must furnish the material for staying packages of Class 1 (explosive) materials loaded by them.

(l) Division 1.1 or 1.2 (Class A explosive) materials may not be loaded, transported, or stored in a rail car equipped with any type of lighted heater or open-flame device, or electric devices having exposed heating coils, or in a rail car equipped with any apparatus or mechanism utilizing an internal combustion engine in its operation.

(m) [Reserved]

(n) A container car or freight container on a flatcar or a gondola car other than a drop-bottom car, when properly loaded, blocked, and braced to prevent change of position under conditions normally incident to transportation, may be used to transport any Division 1.1 or 1.2 (Class A explosive) material except black powder packed in metal containers. A freight container must be designed, constructed, and maintained so as to be weather tight and capable of preventing the entrance of sparks. In addition:

(1) A freight container must be of such design and so braced as to show no evidence of failure of the container or the bracing when subjected to impact from each end of at least 13 km (8.1 miles) per hour. Its efficiency shall

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be determined by actual test, using dummy loads equal in weight and general character to material to be shipped.

(2) A container car or car which is loaded with freight containers must be placarded with the Class 1 (explosive) materials placards as required by subpart F of part 172 of this subchapter and with properly executed car certificates as required by § 174.104.

(3) Lading must be so loaded, blocked, and braced within the freight container that it will not change position under impact from each end of at least 13 km (8.1 miles) per hour.

(o) Division 1.1, 1.2, or 1.3 (Class A or Class B explosive) materials may be loaded and transported in a tight closed truck body or trailer on a flatcar. Wooden boxed bombs, rocket ammunition, and rocket motors, Division 1.1, 1.2, or 1.3 (Class A or Class B explosive) materials, which due to their size cannot be loaded in tight, closed truck bodies or trailers, may be loaded in or on open-top truck bodies or trailers. However, they must be protected against accidental ignition. In addition:

(1) Each truck body or trailer must meet the requirements of part 177 of this subchapter, applicable to shipments of Class 1 (explosive) materials by motor vehicle.

(2) Each truck body or trailer must be so secured on the rail car so that it will not permanently change position or show evidence of failure or impending failure of the method of securing the truck body or trailer under impact from each end of at least 13 km (8.1 miles) per hour. Its efficiency shall be determined by actual test, using dummy loads equal in weight and general character to the material to be shipped. For recommended methods of blocking and bracing, see Bureau of Explosives Pamphlet 6C.

(3) Lading must be so loaded, blocked, and braced within or on the truck body or trailer that it will not change position under impact from each end of at least 13 km (8.1 miles) per hour. For recommended methods of blocking and bracing see Bureau of Explosives Pamphlet 6C.

(4) Each rail car containing Class 1 (explosive) materials and each rail car loaded with truck bodies, trailers or containers containing Class 1 (explosive) materials must be placard-

ed with Class 1 (explosive) materials placards as required by subpart F of part 172 of this subchapter and with properly executed car certificates as required by § 174.104.

(5) Each fuel tank of a heater or refrigerating machinery on the truck bodies or trailers must be drained and all automatic heating or refrigerating machinery must be made inoperative by disconnection of the automatic controls or the source of power for their operations.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-26B, 41 FR 57071, Dec. 30, 1976; Amdt. 174-36, 44 FR 70732, Dec. 10, 1979; Amdt. 174-59, 51 FR 5974, Feb. 18, 1986; Amdt. 174-68, 55 FR 52681, Dec. 21, 1990; Amdt. 174-83, 61 FR 51339, Oct. 1, 1996]

§174.102 Forbidden mixed loading and storage.

(a) Division 1.1 or 1.2 (Class A explosive) materials and initiating or priming explosives may not be transported together in the same rail car. Additionally, they may not be transported or loaded in the same rail car or stored on carrier property with charged electric storage batteries or with any hazardous material for which a NONFLAMMABLE GAS, FLAMMABLE GAS, FLAMMABLE LIQUID, FLAMMABLE SOLID, OXIDIZER, ORGANIC PEROXIDE, RADIOACTIVE or CORROSIVE label is required.

(b) Class 1 (explosive) materials may not be loaded together or with other hazardous materials, except as provided in § 174.81. See § 174.104 for loading shipments of Class 1 (explosive) materials or any other material in a placarded and certified car containing a shipment of Division 1.1 or 1.2 (Class A explosive) materials.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52681, Dec. 21, 1990]

§174.103 Disposition of damaged or astray shipments.

(a) Packages of Class 1 (explosive) materials found damaged or broken in transit may be repaired when practicable and not dangerous. A broken box of Division 1.1 or 1.2 (Class A explosive) materials that cannot be repaired

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must be reinforced by stout wrapping paper and twine, placed in another strong box and surrounded by dry, fine sawdust or dry and clean cotton waste or elastic wads made from dry newspapers. A ruptured can or keg must be sealed and enclosed in a strong cloth bag of good quality and boxed. Damaged packages thus protected and properly marked may be forwarded. The box and waybill must be marked to indicate that it has been repacked.

(b) Care must be exercised in repacking damaged containers so that no spark is produced by contact of metal or other hard surfaces which could ignite loose particles of explosive compositions that may be strewn on car floors or freight. In addition, the car floors must be thoroughly swept, and washed with a plentiful supply of water. Iron-wheel trucks, metal hammers, or other metal tools that may produce sparks may not be used. Metal tools must be limited to those made of brass, bronze, or copper.

(c) Each package of Class 1 (explosive) materials showing evidence of leakage of liquid ingredients must:

(1) Be refused if leakage is discovered before acceptance;

(2) Be disposed of to a person who is competent and willing to remove them from the carrier's property, if the leakage is discovered while the shipment is in transit; or

(3) Be removed immediately by consignee, if the leakage is discovered at the shipment's destination.

(d) When the disposition required by paragraph (c) of this section cannot be made, the leaking package must be packed in other boxes large enough to permit enclosure and the leaking boxes must be surrounded by at least 5 cm (2 inches) of dry, fine sawdust or dry and clean cotton waste, and be stored in a station magazine or other safe place until the arrival of an inspector of the Bureau of Explosives, or other authorized person, to superintend the destruction or disposition of the condemned material.

(e) If careful inspection shows that an astray shipment of Class 1 (explosive) materials is in proper condition for safe transportation, it must be forwarded immediately to its

destination if known, or returned to the shipper by the most practicable route.

(f) When a package in an astray shipment is not in proper condition for safe transportation (see paragraphs (a), (c), and (d) of this section), or when the name and address of the consignee and the shipper are unknown, disposition must be made as prescribed by paragraphs (c) and (d) of this section.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52681, Dec. 21, 1990]

§174.104 Division 1.1 or 1.2 (Class A explosive) materials; car selection, preparation, inspection, and certification.

(a) Except as provided in § 174.101 (b), (n), and (o), Division 1.1 or 1.2 (Class A explosive) materials being transported by rail may be transported only in a certified and properly placarded closed car of not less than 36,300 kg (80,028 pounds) capacity, with steel underframes and friction draft gear or cushioned underframe, except that on a narrow-gauge railroad they may be transported in a car of less capacity as long as the car of greatest capacity and strength available is used.

(b) Each rail car used for transporting Division 1.1 or 1.2 (Class A explosive) materials must meet the following requirements as applicable:

(1) The car must be equipped with air brakes, hand brakes, and roller bearings which are in condition for service.

(2) The car may not have any holes or cracks in the roof, sides, ends, or doors through which sparks may enter, or unprotected decayed spots which may hold sparks and start a fire.

(3) The roof of the car must be carefully inspected from the outside for decayed spots, especially under or near the running board, and such spots must be covered or repaired to prevent their holding fire from sparks. A car with a roof generally decayed, even if tight, may not be used.

(4) The doors must close tightly so that sparks cannot get in at the joints, and, if necessary to achieve this degree of tightness, the doors must be stripped. The stripping should be placed on the inside and fastened to the

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door frames where it will form a shoulder against which the closed doors are pressed by means of wedges or cleats in door shoes or keepers. The openings under the doors should be similarly closed. The hasp fastenings must be examined with the doors closed and fastened, and the doors must be cleated when necessary to prevent them from shifting. When the car is opened for any reason, the wedges or cleats must be replaced before car containing Class 1 (explosive) materials is permitted to proceed.

(5) The roller bearings and the trucks must be carefully examined and put in such condition as to reduce to a minimum the danger of hotboxes or other failure necessitating the setting out of the car before reaching its destination.

(6) The car must be carefully swept out before it is loaded. For less-than-carload shipments the space in which the packages are to be loaded must be carefully swept. If evidence of a potential hazardous residue is apparent after the floor has been swept, the carrier must either decontaminate the car or provide a suitable substitute car.

(7) Any holes in the floor or lining must be repaired and special care taken that there are no projecting nails or bolts or exposed pieces of metal which may work loose or produce holes in packages of Class 1 (explosive) materials during transit. Protruding nails in the floor or lining which have worked loose must be drawn, and if necessary for the purpose of fastening the floor or lining, new nails must be driven through other parts thereof.

(8) Metal floor plates must be completely covered with wood, plywood, or fiber or composition sheets of adequate thickness and strength to prevent contact of the floor plates with the packages of Class 1 (explosive) materials under conditions incident to transportation, except that the covering of metal floor plates is not necessary for carload shipments loaded by the Department of Defense provided the Class 1 (explosive) materials are of such nature that they are not liable to leakage of dust, powder, or vapor which might become the cause of an explosion.

(9) If the car is equipped with automobile loading devices, it may not be used unless the

loading device is securely attached to the roof of the car with fastenings supplementing those already provided and so fixed that it cannot fall.

(10) The car must be equipped with high-friction composition brake shoes (except metal deck flat cars used for COFC/TOFC service may be equipped with high phosphorus cast iron brakeshoes) and brake rigging designed for this type of brake shoe. Each brake shoe on the car must be at least 1 cm (0.4 inch) thick, and in safe and suitable condition for service.

(11) The car must have either a metal subfloor with no combustible material exposed beneath the car, or metal spark shields extending from center sill to side sills and from end sills to at least 30 cm (12 inches) beyond the extreme treads of the inside wheels of each truck, which are tightly fitted against the subfloor so that there is no vacant space or combustible material exposed. The metal subfloor or spark shields may not have an accumulation of oil, grease, or other debris which could support combustion.

(c) Before Division 1.1 or 1.2 (Class A explosive) materials may be loaded into a rail car, the car must have been inspected and certified to be in compliance with the requirements of paragraph (b) of this section by a qualified person designated under § 215.11 of this title. The certification shall be made in Car Certificate No. 1 on the form prescribed in paragraph (f) of this section.

(d) If the carrier furnishes the car to a shipper for loading Division 1.1 or 1.2 (Class A explosive) materials, the shipper or his authorized employee shall, before commencing the loading of the car, inspect the interior thereof, and after loading certify to the proper condition of the car and the loading. This certification shall be made on the first signature line in Car Certificate No. 2 on the form prescribed in paragraph (f) of this section. In addition, the finished load must be inspected and certified to be in compliance with the requirements of this part by a qualified person designated under § 215.11 of this title before the car goes forward. This certification shall be made on the second signature line in Car Certificate No. 2 on the form prescribed in paragraph (f) of this section. If the loading is

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performed by the carrier, Car Certificate No. 2 may only be signed by a qualified person designated under § 215.11 of this title.

(e) If a trailer or container containing Division 1.1 or 1.2 (Class A explosive) materials is loaded on a flatcar, the loading and securing of the load on the car must be supervised by a representative of the shipper or carrier. The certification shall be made in Car Certificate No. 3 on the form prescribed in paragraph (f) of this section.

(f) Each car certificate for use in connection with the inspection of rail cars for the carriage of Division 1.1 or 1.2 (Class A explosive) materials shall be printed on strong tag board measuring 18 by 18 cm (7.1 by 7.1 inches) or 15 by 20 cm (5.9 by 7.9 inches). It must be duly executed in triplicate by the carrier, and by the shipper if he loads the shipments. The original must be filed by the carrier at the forwarding station in a separate file and the other two must be attached to the car, one to each outer side on a fixed placard board or as otherwise provided.

_____ Railroad

CAR CERTIFICATE

No. 1 _____ Station _____
19—

I hereby certify that I have this day personally examined Car Number — and that the car is in condition for service and complies with the FRA Freight Car Safety Standards (49 CFR part 215) and with the requirements for freight cars used to transport explosives prescribed by the DOT Hazardous Materials Regulation (49 CFR part 174).

Qualified Person Designated Under
49 CFR 215.11

No. 2 _____ Station _____
19—

I have this day personally examined the above car and hereby certify that the explosives in or on this car, or in or on vehicles or in containers have been loaded and braced; that placards have been applied, according to the regulations prescribed by the Department of Transportation; and that the doors of cars so equipped fit or have been stripped so that sparks cannot enter.

Shipper or his authorized agent

Qualified Person Designated Under
49 CFR 215.11

No. 3 _____ Station _____
19—

I hereby certify that I have this day personally su-

pervised the loading of the vehicles or containers on and their securement to the above car.

Shipper or railway employee inspecting
loading and securement

Note 1: A shipper must decline to use a car not in proper condition.

Note 2: All certificates, where applicable, must be signed.

Note 3: Car certificates remaining on hand as of the effective date of these regulations may be used until stocks are exhausted but not after July 1, 1977.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976]

§174.105 Routing shipments, Division 1.1 or 1.2 (Class A explosive) materials.

Before a shipment of Division 1.1 or 1.2 (Class A explosive) materials destined to a point beyond the lines of the initial carrier is accepted from the shipper, the initial carrier shall ascertain that the shipment can go forward by the route designated. To avoid delays en route, the initial carrier must be in possession of full rate information before forwarding the shipment.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

§174.106 "Order-Notify" or "C.O.D." shipments, Division 1.1 or 1.2 (Class A explosive) materials.

(a) A carrier may not accept for transportation Division 1.1 or 1.2 (Class A explosive) materials, detonators, or detonating primers in any quantity when consigned to "order-notify" or "C.O.D.," except on a through bill of lading to a place outside the United States.

(b) A carrier may not accept for transportation Division 1.1 or 1.2 (Class A explosive) materials, detonators, or detonating primers which the shipper consigns to himself unless the shipper has a resident representative to receive them at the delivery point.

(c) A carrier may not accept Division 1.1 or 1.2 (Class A explosive) materials for transportation subject to "stop-off privileges en route for partial loading or unloading."

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-36, 44 FR 70732, Dec. 10, 1979; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

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§174.110 Car magazine.

When specially authorized by the carrier, Division 1.1 or 1.2 (Class A explosive) materials in quantity not exceeding 68 kg (150 pounds) may be carried in construction or repair cars if the packages of Class 1 (explosive) materials are placed in a "magazine" box made of sound lumber not less than 2.5 cm (0.98 inch) thick, covered on the exterior with metal, and provided with strong handles. The box must be plainly stenciled on the top, sides, and ends, in letters not less than 5 cm (2 inches) high, "EXPLOSIVES-DANGEROUS-HANDLE CAREFULLY". The box must be provided with strong hinges and with a lock for keeping it securely closed. Vacant space in the box must be filled with a cushioning material such as sawdust or excelsior, and the box must be properly stayed to prevent movement within the car. The car must be placarded with EXPLOSIVES 1.1 or 1.2 (EXPLOSIVES A) placards when the magazine contains Division 1.1 or 1.2 (Class A explosive) materials.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

§174.112 Loading Division 1.3 (Class B explosive) materials and Division 1.2 (devices corresponding to Class B explosive) materials (Also see § 174.101).

(a) Division 1.3 (Class B explosive) materials and Division 1.2 (devices corresponding to Class B explosive) materials may not be loaded, transported or stored in a rail car equipped with any type of lighted heater or open-flame device, or in a rail car equipped with any apparatus or mechanism utilizing an internal combustion engine in its operation.

(b) Except as provided in § 174.101(b), (n), or (o) Division 1.3 (Class B explosive) materials and Division 1.2 (devices corresponding to Class B explosive) materials must be transported in a closed car or container car which is in good condition, and into which sparks cannot enter. The car does not require the car certificates prescribed in § 174.104(c) through (f). If the doors are not tight, they must be stripped to prevent the entrance of sparks. Wood floored cars must be equipped with

spark shields (see § 174.104). Packages of Division 1.3 (Class B explosive) materials and Division 1.2 (devices corresponding to Class B explosive) materials must be blocked and braced to prevent their movement and possible damage due to movement of other freight during transportation. For recommended methods of blocking and bracing see Bureau of Explosives Pamphlet No. 6.

(c) Division 1.3 (Class B explosive) materials and Division 1.2 (devices corresponding to Class B explosive) materials may not be transported in a truck body, trailer, or container on a flatcar unless:

(1) The truck body, trailer, or container is closed and tight;

(2) All automatic heating or refrigerating machinery with which the truck body, trailer, or container is equipped is inoperative; and

(3) Packages of Division 1.3 (Class B explosive) materials and Division 1.2 (devices corresponding to Class B explosive) materials are blocked and braced within the truck body, trailer, or container to prevent their movement and possible damage due to movement of other freight during transportation (ends, sidewalls, or doors of the truck body, trailer, or container may not be relied on to prevent the shifting of heavy loads). For recommended methods of blocking and bracing see Bureau of Explosives Pamphlet No. 6C. See § 174.101(o).

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26B, 41 FR 57072, Dec. 30, 1976; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990; Amdt. 174-83, 61 FR 51339, Oct. 1, 1996]

§174.114 Record to be made of change of seals on "Cars loaded with Division 1.1 or 1.2 (explosive) materials".

When a car seal is changed on a car requiring "EXPLOSIVES 1.1 or EXPLOSIVES 1.2 (EXPLOSIVES A) placards" while en route or before delivery to a consignee, a record of the change showing the following information must be made on or attached to the waybill or other form of memorandum which must accompany the car to its destination:

Railroad	Place	Date
Car Initials	Car Number	Number or description of seal broken

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Number or description of seal used to reseal
car _____

Reasons for opening car _____

Condition of load _____

Name and occupation of person opening car _____

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

§174.115 Loading Division 1.4 (Class C explosive) materials.

(a) Division 1.4 (Class C explosive) materials may be loaded into any closed car in good condition, or into any container car in good condition. Car certificates are not required. Packages of Division 1.4 (Class C explosive) materials must be blocked and braced to prevent their movement and possible damage due to movement of other freight during transportation. For methods of recommended loading and bracing see Bureau of Explosives Pamphlet No. 6.

(b) Division 1.4 (Class C explosive) materials may not be transported in a truck body, trailer, or container on a flatcar unless:

(1) The truck body, trailer, or container is closed and tight;

(2) All automatic heating or refrigerating machinery with which the truck body, trailer, or container is equipped is inoperative; and

(3) Packages of Division 1.4 (Class C explosive) materials are blocked and braced within the truck body, trailer, or container to prevent their movement and possible damage due to movement of other freight during transportation. Ends, side walls, or doors of the truck body, trailer, or container may not be relied on to prevent shifting of heavy loads. For recommended methods of blocking and bracing see Bureau of Explosives Pamphlet No. 6C.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-36, 44 FR 70732, Dec. 10, 1979; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

Subpart F—Detailed Requirements for Class 2 (Gases) Materials

§174.200 Special handling requirements.

(a) Division 2.1 (flammable gas) materials may not be loaded, transported, or stored in a

rail car equipped with any type of lighted heater or open-flame device, or in a rail car equipped with any apparatus or mechanism utilizing an internal combustion engine in its operation.

(b) Division 2.1 (flammable gas) materials may not be loaded in a truck body or trailer equipped with any type of lighted heater or any automatic heating or refrigerating apparatus when such truck bodies or trailers are loaded on flatcars except as provided in paragraph (c) of this section.

(c) Heating or refrigeration apparatus may be operated on a motor vehicle loaded on a flatcar when the motor vehicle is loaded with Division 2.1 (flammable gas) materials only if:

(1) The lading space is not equipped with any electrical apparatus that is not non-sparking or explosion-proof;

(2) There is no combustion apparatus in the lading space;

(3) There is no connection for the return of air from the lading space to any combustion apparatus; and

(4) The heating system conforms to § 393.77 of this title and does not heat any part of the lading over 54 °C (129 °F).

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52682, Dec. 21, 1990; 56 FR 66281, Dec. 20, 1991]

§174.201 Class 2 (gases) material cylinders.

(a) Except as provided in paragraphs (b) and (c) of this section, cylinders containing Class 2 (gases) materials being transported in a rail car must be:

(1) Securely lashed in an upright position so as to prevent their overturning;

(2) Loaded into racks securely attached to the car;

(3) Packed in boxes or crates of such dimensions as to prevent their overturning; or

(4) Loaded in a horizontal position.

(b) Specification DOT-4L (§ 178.57 of this subchapter) cylinders being transported in a rail car must be loaded in an upright position and be securely braced.

(c) Cylinders containing Class 2 (gases) materials may be transported in stock cars, gon-

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dola cars and flat cars. However, they may not be transported in hopper bottom cars.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-32, 43 FR 48644, Oct. 19, 1978; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

§174.204 Tank car delivery of gases, including cryogenic liquids.

(a) A tank car containing Class 2 (gases) material may not be unloaded unless it is consigned for delivery and unloaded on a private track (see § 171.8 of this subchapter). However, if a private track is not available, it may be delivered and unloaded on carrier tracks subject to the following conditions:

(1) A tank car of DOT-106A or 110A type (§ 179.300 or § 179.301 of this subchapter) may not be delivered and the loaded unit tanks may not be removed from the car frame on carrier tracks. However, a carrier may give permission for the unloading of these containers on carrier tracks only if a private siding is not available within a reasonable trucking distance of the final destination. In addition, before the car is accepted for transportation, the shipper must obtain from the delivering carrier and file with the originating carrier, written permission for the removal and the consignee must furnish an adequately strong mechanical hoist by which the tanks can be lifted from the car and deposited directly upon vehicles furnished by the consignee for immediate removal from carrier property.

(2) The following tank cars may not be delivered and unloaded on carrier tracks unless the lading is piped directly from the car to permanent storage tanks of sufficient capacity to receive the entire contents of the car; however, such cars may be stored on a private track (see § 171.8 of this subchapter) or on carrier tracks designated by the carrier for such storage:

(i) A tank car containing Division 2.1 (flammable gas) material that is a cryogenic liquid; or

(ii) A tank car, except for a DOT-106A or 110A multi-unit tank car tank (§ 179.300 or § 179.301 of this subchapter), containing anhydrous ammonia; hydrogen chloride, refrigerated liquid; hydrocarbon gas, liquefied; or

liquefied petroleum gas; and having interior pipes for liquid and gas discharge valves equipped with check valves.

(b) [Reserved]

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-32, 43 FR 48644, Oct. 19, 1978; Amdt. 174-43, 48 FR 27699, June 16, 1983; 48 FR 50440, 50441, Nov. 1, 1983; Amdt. 174-68, 55 FR 52682, Dec. 21, 1990]

§174.290 Materials extremely poisonous by inhalation shipped by, for, or to the Department of Defense.

(a) General. The provisions of this section apply only to materials extremely poisonous by inhalation which are Division 2.3 materials in Hazard Zone A and Division 6.1 materials in Hazard Zone A, as defined in § 173.133(a)(2) of this subchapter. Such materials when shipped by, for, or to the Department of Defense may be transported by rail only if loaded and handled in accordance with the requirements of this section.

(b) A Division 2.3 Hazard Zone A or a Division 6.1 Hazard Zone A material extremely poisonous by inhalation may be transported in:

(1) UN 1N1 or UN 1N2 metal drums or equivalent military specification metal drums, by boxcar, gondola car (flat bottom), or stock car in carload lots. See § 174.55(a) (1) through (4) and § 174.600 for blocking, bracing, and stowage requirements;

(2) Tanks which are authorized under this subchapter for a Hazard Zone A material extremely poisonous by inhalation, Specification DOT 106A (§§ 179.300 and 179.301 of this subchapter), mounted on or secured to a multi-unit car or gondola car (flat bottom) in carload lots only;

(3) Bombs, by boxcar, or gondola car (flat bottom) in carload lots only; or

(4) Projectiles or ammunition for cannon with gas filled projectiles, by boxcar in carload or less-than-carload lots.

(c) Each shipment of one or more carloads of a material extremely poisonous by inhalation, as described in paragraph (b) of this section, must be accompanied by a Department of Defense qualified escort supplied with equipment to handle leaks and other packaging

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failures which could result in escape of the material. The escort shall remain with the shipment during the entire time that it is in the custody of the carrier and in the event of leakage or escape of material, shall make repairs and perform decontamination as necessary.

(d) When a material extremely poisonous by inhalation is transported in a tank, the tank must be securely mounted on a rail car especially provided for it or on a gondola car prepared with substantial wooden frames and blocks.

(e) Bombs, projectiles, and cannon ammunition being transported by rail must be loaded, blocked and braced as shown in Bureau of Explosives Pamphlet No. 6A, or Department of Defense specifications. When a shipment is loaded in a gondola car it must be securely blocked and braced and not loaded higher than the sides of the car.

(f) When a material extremely poisonous by inhalation is transported in drums with filling holes in the heads, they must be loaded on their bottoms. They may be loaded in rows, lengthwise of the car and any space between the sides of the car and the nearest row of drums must be "filled in" with wooden boards or lumber nailed to sides of the car sufficient in length and width to contact both hoops of drums, or they may be loaded across the car in staggered stacks of which the number of drums in alternate stacks is reduced by one drum. All drums in stacks following the first stack loaded in the end of the car must be placed tightly into the angle of the space formed by the sidewalls of the drum in the preceding stack. Any space between the sides of the car and the drums in stacks having the greater number of drums must be filled in with wooden boards or lumber nailed to sides of the car sufficient in length and width to contact both hoops of the drums.

(g) When a material extremely poisonous by inhalation is transported in drums with filling holes in the sides, they must be loaded on their sides with the filling holes up. They must be loaded lengthwise of the car in rows and any space between the sides of the car and the nearest row of drums must be filled in with wooden boards or lumber nailed to sides

of the car sufficient in length and width to contact both hoops of the drums.

(h) When a material extremely poisonous by inhalation is transported in drums in a boxcar, they must be loaded from ends of the car toward the space between the car doors, and there braced by center gates and wedges. See Sketch 1, Bureau of Explosives Pamphlet No. 6.

(i) The doorways of a boxcar in which a material poisonous by inhalation is being transported must be protected by one of the methods prescribed in Sketch 1, Bureau of Explosives Pamphlet No. 6A.

[Amdt. 174-68, 55 FR 52683, Dec. 21, 1990; Amdt. 174-74, 58 FR 51533, Oct. 1, 1993]

Subpart G—Detailed Requirements for Class 3 (Flammable Liquid) Materials

§174.300 Special handling requirements.

(a) Class 3 (flammable liquid) materials may not be loaded, transported, or stored in a rail car equipped with any type of lighted heater or open-flame device, or in a rail car equipped with any apparatus or mechanism utilizing an internal combustion engine in its operation.

(b) A truck body or trailer which is loaded with a Class 3 (flammable liquid) materials and equipped with a lighted heater or any automatic heating or refrigerating apparatus may not be loaded on a flatcar except as provided in paragraph (c) of this section.

(c) Heating or refrigeration apparatus on a motor vehicle loaded with Class 3 (flammable liquid) materials may be operated while the motor vehicle is loaded on a flatcar only if:

(1) The lading space is not equipped with any electrical apparatus that is not non-sparking or explosion-proof;

(2) There is no combustion apparatus in the lading space;

(3) There is no connection for the return of air from the lading space to any combustion apparatus; and

(4) The heating system conforms to § 393.77 of this title and does not heat any part of the lading over 54 °C (129 °F).

(d) Metal barrels or drums containing Class 3 (flammable liquid) materials may be trans-

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ported in a steel gondola or flatcar or in a stock car. However, they may not be transported in a hopper bottom car.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-31, 43 FR 31143, July 20, 1978; Amdt. 174-68, 55 FR 52683, Dec. 21, 1990]

§174.304 Class 3 (flammable liquid) materials in tank cars.

A tank car containing a Class 3 (flammable liquid) material, other than liquid road asphalt or tar, may not be transported by rail unless it is originally consigned or subsequently reconsigned to a party having a private track on which it is to be delivered and unloaded (see § 171.8 of this subchapter) or to a party using railroad siding facilities which are equipped for piping the liquid from the tank car to permanent storage tanks of sufficient capacity to receive the entire contents of the car.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-32, 43 FR 48644, Oct. 19, 1978; Amdt. 174-68, 55 FR 52683, Dec. 21, 1990]

Subparts H-I [Reserved]

Subpart J—Detailed Requirements for Division 6.1 (Poisonous) Materials

§174.600 Special handling requirements for materials extremely poisonous by inhalation.

A tank car containing a material extremely poisonous by inhalation which is a Division 2.3 material in Hazard Zone A or a Division 6.1 material in Hazard Zone A, as defined in § 173.133(a)(2) of this subchapter, may not be transported by rail unless it is originally consigned or subsequently reconsigned to a party having a private track on which it is to be delivered and unloaded (see § 171.8 of this subchapter) or to a party using railroad siding facilities which are equipped for piping the liquid or gas from the tank car to permanent storage tanks or sufficient capacity to receive the entire contents of the car. See the requirements in § 174.290 for materials extremely poisonous by inhalation which are shipped by, for, or to the Department of Defense.

[Amdt. 174-68, 55 FR 52684, Dec. 21, 1990]

§174.615 Cleaning cars.

(a) [Reserved]

(b) After Division 6.1 (poisonous) materials are unloaded from a rail car, that car must be thoroughly cleaned unless the car is used exclusively in the carriage of Division 6.1 (poisonous) materials.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52684, Dec. 21, 1990; Amdt. 174-82, 61 FR 18933, Apr. 29, 1996]

§174.680 Division 6.1 (poisonous) materials with foodstuffs.

(a) A carrier may not transport any package bearing a POISON or POISON INHALATION HAZARD label in the same car with any material marked as or known to be a foodstuff, feed, or any other edible material intended for consumption by humans or animals.

(b) A carrier must separate any package bearing a KEEP AWAY FROM FOOD label from materials marked as or known to be foodstuffs, feed, or any other edible materials intended for consumption by humans or animals as required in § 174.81(e)(3) for classes identified with the letter "O" in the Segregation Table for Hazardous Materials.

[Amdt. 174-68, 55 FR 52684, Dec. 21, 1990; 62 FR 1217, Jan. 08, 1997]

Subpart K—Detailed Requirements for Class 7 (Radioactive) Materials

§174.700 Special handling requirements for Class 7 (radioactive) materials.

(a) Each rail shipment of low specific activity materials or surface contaminated objects as defined in § 173.403 of this subchapter must be loaded so as to avoid spillage and scattering of loose material. Loading restrictions are prescribed in § 173.427 of this subchapter.

(b) The number of packages of Class 7 (radioactive) materials that may be transported by rail car or stored at any single location is limited to a total transport index number (as defined in § 173.403 of this subchapter) of not more than 50. This provision does not apply to exclusive use shipments as described in

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§§ 173.403, 173.427, 173.441, and 173.457 of this subchapter.

(c) Each package of Class 7 (radioactive) material bearing RADIOACTIVE YELLOW-II or RADIOACTIVE YELLOW-III labels may not be placed closer than 0.9 meter (3 feet) to an area (or dividing partition between areas) which may be continuously occupied by any passenger, rail employee, or shipment of one or more animals, nor closer than 4.5 meters (15 feet) to any package containing undeveloped film (if so marked). If more than one package of Class 7 (radioactive) materials is present, the distance must be computed from the table below on the basis of the total transport index number (determined by adding together the transport index numbers on the labels of the individual packages) of packages in the rail car or storage area:

Total transport index	Minimum separation distance to nearest undeveloped film		Minimum distance to area of persons, or minimum distance from dividing partition of a combination car	
	Meters	Feet	Meters	Feet
	None	0	0	0
0.1 to 10.0	4.5	15	0.9	3
10.1 to 20.0	6.7	22	1.2	4
20.1 to 30.0	7.7	29	1.5	5
30.1 to 40.0	10	33	1.8	6
40.1 to 50.0	10.9	36	2.1	7

Note: The distance in the table must be measured from the nearest point on the nearest packages of Class 7 (radioactive) materials.

(d) Each fissile material, controlled shipment must be transported in accordance with one of the methods prescribed in § 173.457 of this subchapter. The transport controls must be adequate to assure that no fissile material, controlled shipment is transported in the same transport vehicle with any other fissile Class 7 (radioactive) material shipment. In loading and storage areas, each fissile material, controlled shipment must be segregated by a distance of at least 6 meters (20 feet) from other packages required to bear one of the "radioactive" labels described in Part 172 of this subchapter.

(e) A person shall not remain unnecessarily in, on or near a transport vehicle containing Class 7 (radioactive) materials.

(f) In the case of packages shipped under the exclusive use provisions of § 173.441(b) of this subchapter for packages with external radiation levels in excess of 2 mSv per hour (200 mrem per hour) at the package surface –

(1) The transport vehicle must meet the requirements for a closed transport vehicle (§ 173.403 of this subchapter);

(2) Each package must be secured so that its position within the transport vehicle remains fixed under conditions normally incident to transportation; and

(3) The radiation level may not exceed 0.02 mSv per hour (2 mrem per hour) in any normally occupied position in the transport vehicle or adjacent rail car.

[Amdt. 174-80, 60 FR 50331, Sept. 28, 1995, as amended by Amdt. 174-80, 61 FR 20753, May 8, 1996]

§174.705 Removed.

Removed by Direct Final rule published in the Federal Register dated September 2, 1997. No confirmation of the effective date was published as of October 1, 1997.

§174.715 Cleanliness of transport vehicles after use.

(a) Each transport vehicle used for transporting Class 7 (radioactive) materials as exclusive use, as defined in § 173.403 of this subchapter, must be surveyed with appropriate radiation detection instruments after each use. A transport vehicle may not be returned to service until the radiation dose rate at any accessible surface is 0.005 mSv per hour (0.5 mrem per hour) or less, and there is no significant removable radioactive surface contamination, as defined in § 173.443 of this subchapter.

(b) This section does not apply to any transport vehicle used solely for transporting Class 7 (radioactive) materials if a survey of the interior surface shows that the radiation dose rate does not exceed 0.1 mSv per hour (10 mrem per hour) at the interior surface or 0.02 mSv per hour (2 mrem per hour) at 1 meter (3.3 feet) from any interior surface. The trans-

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port vehicle must be stenciled with the words "FOR RADIOACTIVE MATERIALS USE ONLY" in lettering at least 7.6 centimeters (3 inches) high in a conspicuous place on both sides of the exterior of the transport vehicle, and it must be kept closed at all times other than during loading and unloading.

[Amdt. 174-80, 60 FR 50332, Sept. 28, 1995]

§174.750 Incidents involving leakage.

(a) In addition to the incident reporting requirements of §§ 171.15 and 171.16 of this subchapter, the carrier shall also notify the offeror at the earliest practicable moment following any incident in which there has been breakage, spillage, or suspected radioactive contamination involving Class 7 (radioactive) materials shipments. Transport vehicles, buildings, areas, or equipment in which Class 7 (radioactive) materials have been spilled may not be again placed in service or routinely occupied until the radiation dose rate at every accessible surface is less than 0.005 mSv per hour (0.5 mrem per hour) and there is no significant removable radioactive surface contamination (see § 173.443 of this subchapter).

(b) The package or materials should be segregated as far as practicable from personnel contact. If radiological advice or assistance is needed, the U.S. Department of Energy (DOE) should also be notified. In case of obvious leakage, or if it appears likely that the inside container may have been damaged, care should be taken to avoid inhalation, ingestion, or contact with the Class 7 (radioactive) material. Any loose Class 7 (radioactive) materials should be left in a segregated area and held pending disposal instructions, from qualified persons.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-42, 48 FR 10245, Mar. 10, 1983; Amdt. 174-61, 51 FR 34987, Oct. 1, 1986; Amdt. 174-65, 53 FR 38274, Sept. 29, 1988; Amdt. 174-68, 55 FR 52684, Dec. 21, 1990; Amdt. 174-80, 60 FR 50332, Sept. 28, 1995]