Hazardous Materials Transportation Training Modules

VERSION 5.0

INSTRUCTOR

MODULE 6B

Script

Visual	Narrative
1	
	This module is based on Part 175 of 49 CFR, and presents the DOT requirements for transporting hazardous materials by air. Topics include quantity limitations, packaging requirements, excepted materials, separation requirements, and notification to the Pilot-in-Command. Although the U.S. Department of Transportation is considering changes to the organization and content of Part 175 as of this CD's release, the current module is valid training for Air Carrier requirements, and can be incorporated into your modal-specific training program. The CD-ROM training modules will be re-released with an updated Air Carrier module in the near future if sweeping changes occur. Remember, these training modules are for training purposes only, and should not be used as a hands-on guide to the daily work of hazardous materials transportation. The HMR themselves, at the time of transportation, are your guide for the transportation of hazardous materials.

2

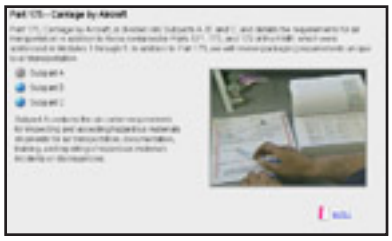
After completing Module 6B on the Carrier Requirements (Air) lesson, you should be able to:

- Identify the DOT requirements for air transportation of hazardous materials, as set out in Subparts A, B, and C of Part 175;
- Compare the uses of the guidelines found in Part 175 with those of the International Civil Aviation Organization's (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air;
- Distinguish between the responsibilities of the shipper and the air carrier;
- State the notification guidelines for passengers, pilots, and facilities;
- Identify the exceptions to the "Carrying of Hazmat in Cabins or on Flight Decks" regulation;
- Define cargo aircraft, passenger aircraft, forbidden, and magnetic field;
- Evaluate the packaging requirements for air transportation;
- Identify quantity limitations and exceptions, loading and unloading, and storage guidelines for air transportation;
- Identify guidelines related to completing a discrepancy report; identify incident reporting guidelines.

3

This module discusses the requirements for carrying hazardous materials by air – including both carrying hazardous materials as a passenger, and accepting and/or transporting hazardous materials in commerce as an air carrier, in any aircraft in the US and in all aircraft registered in the US, anywhere in the world. Click on each button to learn more.

4



Subpart A contains the air carrier requirements for inspecting and accepting hazardous materials shipments for air transportation, documentation, training, and reporting of hazardous materials incidents or discrepancies

5

Subpart B addresses air carrier requirements regarding loading, unloading, and handling of hazardous materials, including quantity limitations, stowage compatibility, cargo location, and orientation of packages.

6

Subpart C contains special requirements for certain hazard classes and commodities such as flammable liquids, poisons, radioactive materials, and infectious substances.

7

All US air carriers and foreign air carriers operating flights to or from US airports must comply with the 49 CFR requirements governing the acceptance, storage, loading, and transportation of hazardous materials by air. These requirements are in Subchapter C of 49 CFR, Parts 171-180.

8

Instead of preparing shipments in accordance with 49 CFR, Parts 172 and 173, you may prepare them in accordance with the International Civil Aviation Organizations Technical Instructions for the Safe Transport of Dangerous Goods by Air, also known as ICAO Technical Instructions. This facilitates both domestic and international transportation by air; however, Section 171.11 excepts these shipments only from certain regulations for packaging, marking, labeling, classifying, and describing materials on shipping papers. All other requirements of Parts 171 through 180 must be met.

9

An air carrier to whom the HMR applies may not transport a hazardous material by aircraft unless each of its hazmat employees involved in that transportation has been trained and tested as required in 175.20 and 172.700-704. Initial training is required within 90 days for new employees or employees who assume new hazmat related responsibilities. Until they are trained, these employees may perform a hazardous materials employee function only under supervision. DOT requires that hazmat employees be retrained and tested at least once every three years; however, the FAA, under 14 CFR, requires annual training for air carrier employees. Both DOT and FAA require the employer to maintain training records.

10

A person may not perform a hazmat function unless they have been trained in that function or, for a new employee or one who changes job functions; they work under the direct supervision of someone who is trained. If any regulatory requirement pertaining to a function the employee performs changes, the employee must receive training concerning that function immediately.

11

Training for air carriers must also incorporate training requirements in 14 CFR, parts 121 and 135. Under these regulations, air carriers may be defined as “will-carry” or “will-not-carry.” “Will-carry” operators have chosen to accept and carry hazardous materials, under the HMR. “Will-not-carry” operators have chosen not to accept hazardous materials, but still require training to reject hazardous materials packages. Both “will-carry” and “will-not-carry” operators are required to include certain information in their manuals. Additional information must be provided in “will-carry” manuals. Click on each button to learn more.

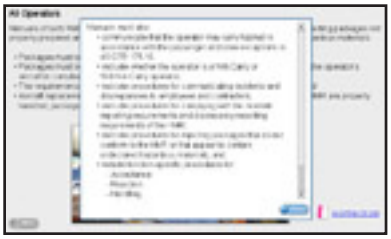
12

The regulations in 14 CFR Parts 121 and 135 require specific information be contained in the manuals of both Will-Carry and Will-Not-Carry Operators. The manuals must spell out points regarding compliance with the HMR, as well as:

- Will-Carry or Will-Not-Carry status;
- Procedures for communicating incidents and discrepancies within the company, to contractors, and to the Federal government;
- Procedures for rejecting packages; and function-specific procedures that must be in the manual of an employee who performs a given job function, or the employee's supervisor.

Select the More button for additional information.

13



Manuals must also:

- Communicate that the operator may carry hazmat in accordance with the passenger and crew exceptions in 49 CFR 175.10;
- Indicate whether the operator is a Will-Carry or Will-Not-Carry operator;
- Indicate procedures for communicating incidents and discrepancies to employees and contractors;
- Indicate procedures for complying with the incident reporting requirements and discrepancy reporting requirements of the HMR;
- Indicate procedures for rejecting packages that do not conform to the HMR or that appear to contain undeclared hazardous materials; and
- Include function-specific procedures for: Acceptance; Rejection; and Handling.

14

Manuals of Will-Carry Operators must contain additional procedures and information regarding the transport of hazardous materials. Will-Carry Operators must also provide procedures and information to ensure that employees comply with the HMR in regard to the offering, acceptance, handling, storage, packing, and loading of hazardous materials; requirements for notice to the Pilot-in-Command; and the shipping of aircraft replacement parts shipped as COMAT, consumable materials, and any other regulated item. In summary, the Manual of the Will-Carry Operator must provide additional information to further communicate to its employees and contractors, how to properly carry hazardous materials in commerce.

15

Manuals of Will-Not-Carry Operators need not meet any additional requirements. However, in meeting the manual requirements that are common to both Will-Carry and Will-Not-Carry operators, the will-not-carry operator must include procedures and information necessary to assist the employee in identifying and rejecting packages that are marked or labeled as containing hazardous materials, or that show signs of containing hazardous materials. In summary, the manual of a will-not-carry operator must tell its employees how to recognize and refuse to carry hazardous materials in commerce.

16

The air carrier relies on the shipper for compliance with the HMR based on the package markings and description on the shipping papers. Air carriers do not open packages or test contents of packages. The air carrier must verify that the shipper has prepared the packages and shipping documents properly. Section 175.30 lists specific items that you must check before you may accept hazardous material packages. Click on the buttons to learn more about the responsibilities of both the shipper and the air carrier.

17

In preparing a hazardous material for transportation by air, the shipper must:

- Classify hazardous material
- Determine if regulated for air transportation, and the quantities authorized
- Describe material on shipping documents
- Determine packaging requirements
- Package material properly
- Mark and label package
- Determine placarding requirements

18

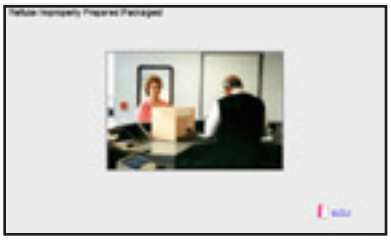
If the shipper used an overpack:

- The proper shipping name, ID number, and any special handling markings on the inside packages must be clearly visible or be reproduced on the outside of the overpack.
- All labels appearing on inside packages must be clearly visible or reproduced on the outside of the overpack.
- The overpack must display a statement that the inside packages comply with the prescribed specifications, when specific packaging is required.
- The overpack must not contain a package bearing the CARGO-AIRCRAFT-ONLY label unless the overpack affords clear visibility of and easy access to the package; or the material in the package may be carried in an inaccessible location; or only one package is overpacked.

19

The air carrier must verify that the material, as described on the shipping papers, is authorized and is within the quantity limitations for passenger or cargo aircraft, respectively, as specified in the HMT. Additionally, the air carrier must verify the content and accuracy of the shipping papers by asking questions such as these:
Is the declaration and shipping description correct?
When required, does the shipping paper contain emergency response information?
Has the shipper certified that the shipment is in proper condition for transport by air?
Finally, are two copies of the shipping papers accompanying the shipment?
The air carrier must also determine whether the hazardous materials are marked, labeled and, when required, placarded. Package markings must correspond with the proper shipping name and ID number, as required, on the shipping documents. Hazardous materials permitted on cargo aircraft, but not on passenger aircraft, must be labeled with a Cargo Aircraft Only label. Packages must be in good condition for air transportation and the package integrity must not have been compromised, and is not leaking. Finally, check that the seals on radioactive material packages have not been broken.

20



If an air carrier employee finds that the shipper has not prepared the package properly, the air carrier must refuse the package.

21

Professor Fed's Knowledge Check 1

Instructions: Click and drag each of the terms shown here to fill in the blanks below.

shipper	authorized	transportation
refused	overpack	air carrier
each	ICAO	

1. The _____ must classify, describe, package, mark, and label the hazardous materials.

2. An air carrier is required to make sure that the material, as described on the shipping papers and package markings, is _____ and is within the quantity limitations for carriage aboard an aircraft as specified in the HMT.

3. All US air carriers and foreign air carriers operating flights to or from US airports must comply with the 49 CFR, Part 175, requirements governing the acceptance, storage, loading, and _____ of hazardous materials by air.

4. Improperly prepared packages must be _____.

The correct answers are: 1) shipper; 2) authorized; 3) transportation; 4) refused

22

Air carriers that transport passengers must display signs warning passengers that the carriage of some hazardous materials aboard aircraft, in their luggage, or on their person is prohibited by Federal law. The signs must inform passengers of special exceptions that are permitted and penalties for failure to comply with the law. These signs are available from the Pipeline and Hazardous Materials Safety Administration and from the Federal Aviation Administration.

23

At cargo facilities, a similar sign must be displayed informing shippers of the requirements applying to air shipments of hazardous materials, and the penalties for failure to comply with those requirements.

24

Hazardous materials may not be carried in the cabin of a passenger aircraft or on the flight deck of any aircraft, except as authorized in 175.10. The list of exceptions is quite long. For ease of comprehension, we have grouped the exceptions into five categories. Click on the buttons to learn more about these exceptions.

25

Hazardous Materials required for the safe operation of the aircraft include aviation fuel and oil in tanks required to operate the aircraft, and hazardous materials required on board an aircraft to make the aircraft airworthy include fire extinguishers, oxygen generators, escape chutes, and life rafts.

26

Replacements for such hazardous materials must be in compliance with the HMR. To ship aircraft spares and supplies, the shipper may use packaging specifically designed for these items, if the packaging provides at least an equivalent level of protection to those required by 49 CFR. Aircraft batteries are not subject to the quantity limitations in 172.101 and 175.75(a). A serviceable tire in a tire assembly may not be inflated to a gauge pressure that exceeds the maximum rated pressure for that tire.

27

Flight crew and passengers may carry hazardous materials intended for personal use. Nonradioactive medicinal and toilet articles (including aerosols) may be carried by flight crew and passengers in checked or carry-on baggage. Other aerosols for personal use in Division 2.2 with no subsidiary risk, may only be carried in checked baggage. Each container carried may contain no more than 470 ml (16 fluid ounces) or 2 kg (1.1 lbs) of material. The total capacity of all the containers carried by one person may not be more than 70 net weight ounces or 68 fluid ounces. Personal smoking materials are allowed, but not lighters with flammable liquid reservoirs and containers with lighter fluid for refilling lighters. Strike anywhere matches are forbidden. Butane curling irons may not include refills, and are limited to one per person.

28

A crewmember or passenger may carry small arms ammunition, for personal use only, in their checked baggage. The ammunition must be securely packed in fiber, wood or metal boxes or containers specifically designed for that purpose. They may also carry duty free perfumes, colognes, and alcohol not exceeding 140 Proof, in their carry-on baggage. Dry ice used to cool perishables, may be carried as cargo in both checked and carry-on baggage. Quantities are limited to 2.3 kg or 5.07 pounds in cargo and checked baggage, and 2 kg or 4.4 pounds in carry-on baggage. The packaging must permit the release of carbon dioxide gas. For dry ice in cargo or checked baggage, the package must be marked with: the name of the contents being cooled; the net quantity of dry ice; and the words Carbon Dioxide, Solid, or Dry Ice.

29

Hazardous materials intended for use in specialized air operations include: hazardous materials loaded and carried for purposes of aerial seeding, dusting, spraying, fertilizing, crop improvement or pest control; smoke grenades and flares used in sport parachuting; pyrotechnics used in air shows; and hazardous materials expended during flight for weather control, environmental restoration and protection.

30

Hazardous Materials that must be carried to meet the medical needs of passengers or crewmembers include: oxygen, or any hazardous material used to generate oxygen, for the medical use by a passenger, which is furnished by the air carrier; implanted medical devices, such as a heart pacemaker; wheelchairs and other mobility devices may be accepted as checked baggage when the battery is disconnected and the terminals are insulated, or the battery is securely attached to the wheelchair, or the battery is removed, properly marked and packed in a strong rigid packaging. Click on each button to learn more about the different requirements for spillable and nonspillable batteries.

31

Nonspillable batteries used in mobility aids such as wheelchairs are excepted from the Hazardous Materials Regulations, but the battery must be protected against short circuits and securely packaged. For batteries manufactured after September 30, 1995, the battery and the outer packaging must be marked NONSPILLABLE or NONSPILLABLE BATTERY; and the battery must be capable of passing the vibration and pressure differential test.

32

Spillable batteries must be packed in leak tight packaging with enough absorbent material to absorb all of the battery contents. Additionally, the package must be labeled Corrosive and marked “Battery, wet, with wheelchair”, and the Pilot in Command must be notified.

33

The last group, miscellaneous hazardous materials exceptions**,** includes: carbon dioxide (solid), or dry ice, used for food and beverage service aboard the aircraft; alcohol, perfumes and colognes carried for sale on the aircraft; small medical thermometers; and weather agency barometers.

34

Professor Fed's Knowledge Check 2

Instructions: Click and drag each of the terms shown here to fill in the blanks below.

excepted	prohibited	separate	authorized
radios	medicines	routine	specialized
disconnected	removed	HMT	HMR

1. Air carriers that transport passengers must display signs warning passengers that the carriage of some hazardous materials aboard aircraft in their luggage or on their person is _____ by Federal law. At cargo facilities, a similar sign must be displayed.

2. Hazardous materials that are required to make the aircraft airworthy, such as aircraft batteries, escape chutes and fire extinguishers, are _____ from the HMR, but replacements for these hazardous materials are subject to the regulations.

3. Small quantities of certain personal toilet articles, smoking materials, _____, and dry ice are excepted from the HMR and may be hand carried on board an aircraft by passengers and crewmembers in their carry on baggage.

4. Hazardous materials used in _____ air operations, such as crop dusting, sport parachuting, and weather control, are generally not subject to the HMR.

5. Wheelchairs with either spillable or nonspillable batteries may be accepted as checked baggage. All batteries must be _____ and the terminals insulated.

Correct answers: 1) prohibited, 2) excepted, 3) medicines, 4) specialized, 5) disconnected

35

It is important that all parties involved in the handling of hazardous materials use a common set of terms and definitions. Shown here are the accepted definitions for four of those terms. The term passenger aircraft and cargo aircraft will be used throughout the remainder of this module. A passenger aircraft or passenger carrying aircraft is an aircraft that carries any person other than a crewmember, company employee, an authorized representative of the United States, or a person accompanying a shipment. A cargo aircraft or cargo carrying aircraft is an aircraft that is used to transport cargo and is not engaged in carrying passengers. The terms cargo aircraft, cargo-only aircraft, and cargo aircraft only, have the same meaning in this module. Forbidden means the hazardous material may not be offered for transportation or transported; some materials are forbidden on passenger aircraft only; some are forbidden on all aircraft. Forbidden does not mean the material is not regulated. Magnetic Field, as it applies to carriage by aircraft, means a package with a magnetic field of more than 0.00525 gauss measured 4.5 meters or 15 feet away from any surface of the package. Such packages are forbidden to be carried on an aircraft.

36

Professor Fed's Knowledge Check 3

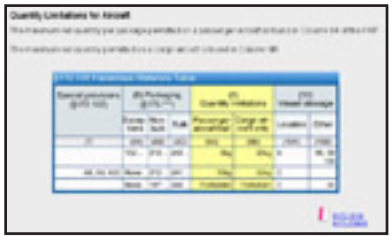
Instructions: Select the best answer from the four choices provided.

FORBIDDEN means the material may not be transported. Some materials are only forbidden on _____ aircraft. Some are forbidden on all aircraft.

A. charter
B. passenger
C. cargo
D. private

The correct answer is B

37



Column 9 of the Hazardous Materials Table entitled, “Quantity Limitations”, forbids or limits the quantity of hazardous materials in one package that may be offered or transported by aircraft. Unless otherwise specified, the quantity limits are net quantity limits. That is, the total weight of the hazardous material, not including the tare weight of the package.

38

Professor Fed’s Knowledge Check 4

Instructions: Select the best answer from the four choices provided.

Column 9B of the HMT forbids or limits the quantity of hazardous materials in one package that may be offered or transported _____.

A. on passenger aircraft only
B. on rail only
C. on cargo aircraft only
D. on all of the above

The Correct answer is C

39

Unless otherwise noted, each packaging used for the shipment of hazardous materials must be designed, constructed, and maintained to prevent the release of the hazardous materials. Proper packaging is critical to the safe transportation of hazardous materials, especially in air transportation where the hazardous materials are subjected to changes in temperature, altitude, and pressure. Click on each button to learn more about these specific requirements.

40

Packages containing Class 4, 5, and 8 materials must meet the performance tests at the Packing Group II level, even if Column 5 of the HMT shows that the materials are in Packing Group III.

41

Packagings must be designed and constructed to prevent leakage that may be caused by internal pressure changes in altitude and temperature during air transportation.

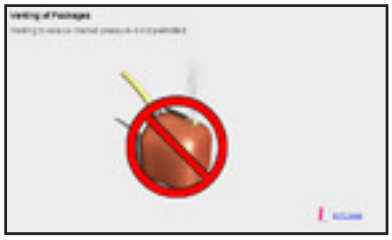
42

Packagings for which retention of liquid is a basic function must be capable of withstanding without leakage the greater of either an internal pressure which produces a gauge pressure of not less than 75 kPa or 11 psig for liquids in Packing Group III of Class 3 or Division 6.1 or 95 kPa or 14 psig for other liquids; or the pressure related to the vapor pressure of the liquid to be conveyed, when determined by calculations provided.

43

Hazardous materials, packed in combination packaging, may be enclosed in an inner packaging which does not meet the pressure requirements provided it is packed inside a supplementary packaging that meets the pressure requirements, and other applicable requirements of the HMR.

44



Unless otherwise noted, venting packages to reduce internal pressure is not permitted when packages are being transported by air.

45

Packages must be securely closed. Friction type closures, such as stoppers and corks must be held securely in place by positive means. Screw type closures must be secured to prevent loosening from vibration or substantial changes in temperature or pressure.

46

Combination packages of liquids in Packing Group I and II of Class 3, 4, 5, 6.1 and 8 require absorbent materials when the inner container is made of glass, earthenware, plastic or metal. The absorbent material must be such that it does not react dangerously with the liquid.

47

Absorbent material is not required for inner packagings which are so protected that they will not likely break and leak under normal conditions of transportation, and leakage from the outer packaging is not likely to occur.

48

When absorbent material is required and the outer packaging is not liquid tight, some additional means of containing the liquid in the event of leakage must be used. This may be in the form of a leak proof liner, plastic bag or other equally efficient means of containment.

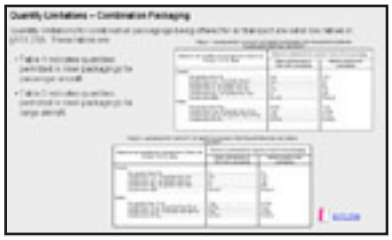
49

When a liquid hazardous material in Packing Group I is being transported on a passenger aircraft and the regulations require absorbent material, there must be sufficient material to absorb the contents of all inner packagings containing such liquids.

50

For Packing Group I liquids being offered for transportation on a Cargo Aircraft Only and Packing Group II liquids offered for passenger aircraft, there must be enough absorbent material in the package to absorb the content of any one of the inner packagings. If the inner packagings are different sizes, there must be enough material to absorb the content of the packaging with the greatest quantity of liquid.

51



When combination packagings are being offered for air transport, the inner packaging must conform to the quantity limits set forth in 173.27(f), Tables 1 and 2. Table 1 indicates quantities permitted in inner packagings for passenger aircraft, and Table 2 indicates quantities permitted in inner packagings for cargo aircraft. Take some time now to familiarize yourself with 49 CFR 173.27(f), Tables 1 and 2.

52

Professor Fed's Knowledge Check 5

Instructions: Find Benzene in the HMT and note the allowed quantities in Column 9a. Benzene, 3, UN 1114, PG II is a flammable liquid. Based on this quantity, select the entry in Table 1 in section 173.27(f) that applies to Benzene, UN 1114.

Correct answer is: Greater than 1L. not greater than 5L

TABLE 1—MAXIMUM NET CAPACITY OF INNER PACKAGING FOR TRANSPORTATION ON PASSENGERCARRYING AIRCRAFT		
Maximum net quantity per package from Column 9a of the § 172.101 table	Maximum authorized net capacity of each inner packaging	
	Glass, earthenware or fiber inner packagings	Metal or plastic inner packagings
Liquids:		
Not greater than 0.5L	0.5	0.5L
Greater than 0.5L. not greater than IL	0.5L	1L
Greater than 1L, not greater than 5L	1L	5L
Greater than 5L, not greater than 60L	2.5L	10L
Greater than 60L, not greater than 220L .	5L	25L
Greater than 220L	No limit	No limit

53

Cylinder valves must be protected against damage and accidental opening when shipped by air. Valve caps must be securely attached or cylinders must be placed in a box or crate.

54

You must not transport tank cars and cargo tanks containing hazardous materials aboard aircraft.

55

Hazardous materials shipped by air and authorized for cargo aircraft only must have the CARGO AIRCRAFT ONLY label affixed to the package, in addition to the hazard class label. The label warns those who handle the shipment that it may not be offered or transported on a passenger aircraft.

56

Professor Fed's Knowledge Check 6

Instructions: Click and drag each of the terms shown here to fill in the blanks below.

combination containing passenger caps
altitude cargo inner

1. When _____ packagings are being offered for air transport, the inner packaging must conform to the quantity limits set forth in 173.27(f), Tables 1 and 2.
2. When absorbent material is required, the material must be such that it would not react dangerously with the spilled material. If absorbent material is required and the outer packaging is not liquid tight, some other means of _____ the spilled material is required.
3. Packages labeled CARGO AIRCRAFT ONLY are prohibited from being offered or transported on _____ aircraft.
4. Cylinder valves must be protected when shipped by air. Equip cylinders with valve _____ or protective headrings or put cylinders in a box or crate.

The correct answers are: 1) combination; 2) containing; 3) passenger; 4) caps

57

A net weight of not more than 25 kg or 55 pounds of hazardous material may be carried in an inaccessible cargo compartment, or in a freight container within an accessible cargo compartment. Additionally, a net weight of not more than 75 kg or 165 pounds of a Division 2.2 (non-flammable compressed gas) may be carried on a passenger-carrying aircraft, for a grand total not to exceed 100 kg. On a cargo aircraft, the quantity limits apply to inaccessible cargo compartments, and to accessible cargo compartments when the materials are not loaded in a freight container, but are loaded in a manner that makes them inaccessible.

58

Radioactive materials are limited to 3.0 Transport Index (TI) per package or a total of 50.0 TI per passenger aircraft. The limits are 10.0 TI per package, with a maximum of 200.00 TI per cargo aircraft.

59

There are no limits for the number of packages of Class 9 (Miscellaneous) materials or ORM-D, on either passenger or cargo aircraft.

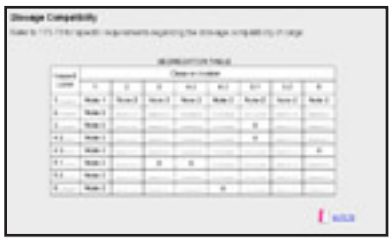
60

Hazmat packages with text or arrows to indicate the proper orientation of the package must be stored and loaded in accordance with the markings.

61

Packages must be secured in an aircraft so that movement or damage of the package in flight is prevented.

62



Incompatible hazardous materials may not be placed next to each other or in a position that might lead to a dangerous interaction in the event of leakage. Look at the Stowage Compatibility Table located in 175.78, Table 1. The numbers across the top of the table and the numbers along the left hand side of the table represent hazard classes. An “X” at the intersection of a row and a column means that these materials may react dangerously with each other and may not be placed next to or in contact with each other in storage or on board the aircraft or in a position which would allow interaction in the event of leakage of the contents. Refer to 175.78 for specific requirements regarding the stowage compatibility of cargo.

63

Do not load magnetized materials in the vicinity of a magnetic compass or compass master unit that is a part of the instrument equipment of the aircraft in a manner that affects its operation. The magnetized materials might cause an erroneous magnetic compass reading on the aircraft. If this requirement cannot be met, a special aircraft swing and compass calibration may be made.

64

On a passenger aircraft, hazardous materials may be carried in a main deck cargo compartment provided that the compartment is inaccessible to passengers and that it meets all certification requirements for a Class B or Class C aircraft cargo compartment.

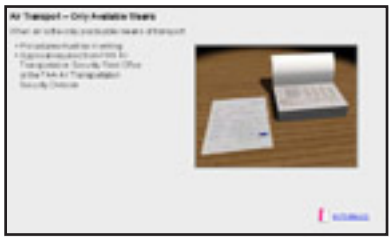
65

You must load hazardous materials acceptable only for cargo aircraft in such a manner that a crew member or other authorized person can see, handle, and – when size and weight permit – separate such packages from other cargo during flight.

66

When packages in the hazard classes or divisions shown here are carried on cargo aircraft, they may be carried in a location which is inaccessible to a crewmember during flight and are not subject to the weight limitation specified in 175.75(a)(2)

67



When packages of hazardous materials acceptable for cargo or passenger aircraft are carried on cargo aircraft, only where other means of transportation are impracticable or not available, packages may be carried in accordance with procedures approved in writing by the FAA Air Transportation Security Field Office responsible for the operator's overall aviation security program or the FAA Air Transportation Security Division, in the region where the operator is located.

68

When packages of hazardous materials acceptable for cargo or passenger aircraft are carried on small, single pilot, cargo aircraft only because other means of transportation are impracticable or not available, they may be carried without regard to quantity limitations as specified in 175.75 in a location that is not accessible to the pilot if the conditions shown here are met.

69

Professor Fed's Knowledge Check 7

Instructions: Click and drag each of the terms shown here to fill in the blanks below.

accessible	inaccessible	10.0	3.0
limited	unlimited	content	orientation
marked and labeled	stored and loaded	crewmembers	passengers

1. Hazardous materials may be transported in an _____ cargo compartment or in a freight container within an accessible cargo compartment on passenger aircraft, if within specified weight limitations.

2. Up to _____ TI per package of Radioactive Materials, but not more than 50.0 TI may be transported on a passenger aircraft. _____ quantities of Class 9 or ORM-D materials may be transported on either passenger or cargo aircraft.

3. Arrows on packages indicate the _____ of the package. Packages containing hazardous materials must be prevented from movement in flight.

4. Materials that react dangerously with each other may not be _____ next to each other.

5. Certain materials in Classes 3, 7, 9, Division 6.1 and 6.2, and ORM-D may be carried on a cargo aircraft in a compartment that is inaccessible to _____. These materials are not subject to the weight limitations in 175.75(a)(2).

Correct Answers: 1) inaccessible, 2) 3.0, unlimited, 3) orientation, 4) stored and loaded, 5) crewmembers

70

Before an aircraft departs, the pilot-in-command must be given written notification describing all hazardous materials that have been loaded. This does not apply to the exceptions listed in 175.10. There is no standard format required for use by air carriers for pilot notification. The notification to pilot-in-command must be readily available to the pilot during flight as it contains information that would be critical in the case of a spill or other emergency.

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In addition to acceptance requirements, 49 CFR, Part 175, Subpart A, contains requirements for reporting hazardous materials discrepancies. Discrepancies are situations where hazardous materials are improperly described, certified, labeled, marked, or packaged in a manner which is not known at the time the air carrier accepts the shipment. If a discrepancy is discovered after the shipment has been accepted, the air carrier must notify the nearest FAA Civil Aviation Security Office. Click on the Discrepancies List button to view a list of Hazardous Material Discrepancies that are required to be reported to the nearest FAA Civil Aviation Security Office if discovered.

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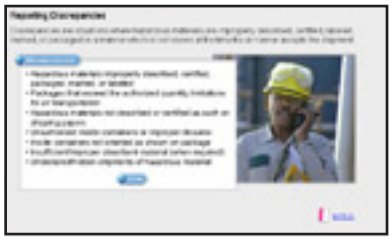

Discrepancies List:

- Hazardous materials improperly described, certified, packaged, marked, or labeled
- Packages that exceed the authorized quantity limitations for air transportation
- Hazardous materials not described or certified as such on shipping papers
- Unauthorized inside containers or improper closures
- Inside containers not oriented as shown on package
- Insufficient/improper absorbent material (when required)
- Undeclared/hidden shipments of hazardous material

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Professor Fed's Knowledge Check 8

Instructions: Select the best answer from the four choices provided.

A discrepancy is a situation in which a hazardous material is improperly described, certified, labeled, marked, or packaged in a manner which is not known when _____ by the air carrier. If a discrepancy is discovered after acceptance by the carrier, the air carrier must notify the nearest FAA Civil Aviation Security Office.

A. accepted
B. transported
C. packaged
D. documented

Correct answer is A

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Despite all safety efforts, incidents do occur. When hazardous materials are involved in a transportation incident, a report may be required. For certain incidents, you must notify either the National Response Center (NRC) or, for infectious substances, the Centers for Disease Control (CDC), as soon as practical but not later than 12 hours after the incident occurs. For any such incident, you must also follow up with a written Hazardous Materials Incident Report .

You must also file a written Hazardous Materials Incident Report within 30 days of discovering any unintentional release of hazardous materials or unintentional discharge of hazardous waste, as well as under certain other conditions (see the guidelines in 171.16). But unless a requirement listed in 171.15 applies, you do not need to notify the NRC or CDC by phone.

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You must notify the NRC as soon as practical in the event of fire, breakage, spillage, or suspected radioactive contamination from a radioactive material. You must also notify the offeror in such a case as soon as practical.

You must notify the CDC as soon as practical in the event of fire, breakage, spillage, or suspected contamination involving an infectious substance other than a diagnostic specimen or regulated medical waste.

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As soon as practical but no later than 12-hours after the occurrence of the release of a marine pollutant the person in physical possession of the hazardous material must provide notice of the incident to the National Response Center by calling 800-424-8802. Notice must include: name of the reporter; contact number; date, time, and location of the incident; extent of injuries; and specifics regarding the hazardous material involved.

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Hazmat incidents that result in any of the following require notification as soon as possible to the National Response Center or the Center for Disease Control:

- Death or injury requiring hospitalization;
- Change in the operational flight pattern or routine of an aircraft;
- The shutdown of a major facility or transportation artery for more than one hour;
- An evacuation of the general public that lasts more than one hour;
- Release of a marine pollutant in the quantity identified; or
- A situation that, in your judgment, requires notification, even if none of the above conditions are met – for example, a continuing danger to life, although no death has yet occurred.

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Professor Fed's Knowledge Check 9

Instructions: Select the best answer from the four choices provided.

Which one of the following results of a hazmat incident is not required to be immediately reported to the nearest NRC or the Center for Disease Control?

A. Death, or injury requiring hospitalization
B. Damage to any facility requiring in-service repair
C. Change in flight pattern or the routine of an aircraft
D. Shutdown of major facility or transportation artery

Correct answer is B

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This concludes the instruction and Knowledge Checks for Module 6B – Carrier Requirements for the Air. You should now be able to:

- Identify the DOT requirements for air transportation of hazardous materials, as set out in Subparts A, B, and C of Part 175;
- Compare the uses of the guidelines found in Part 175 with those of the International Civil Aviation Organizations (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air;
- Distinguish between the responsibilities of the shipper and the air carrier;
- State the notification guidelines for passengers, pilots, and facilities;
- Identify the exceptions to the “Carrying of Hazmat in Cabins or on Flight Decks” regulation;
- Define cargo aircraft, passenger aircraft, forbidden, and magnetic field;
- Evaluate the packaging requirements for air transportation;
- Identify quantity limitations and exceptions, loading and unloading, and storage guidelines for air transportation; and
- Identify guidelines related to completing a discrepancy report, and identify incidence reporting guidelines.

It is now time to assess how well you understand the information presented in this module. When you are ready, select Test on the Express Lane, to begin the end of module test for Module 6B. This will be an open reference test. Good luck.

End of Module Test

Now that you have completed reviewing the topic on Carrier Requirements for the Air, let's evaluate how well you have mastered this material. This end of module test contains fourteen multiple-choice questions to determine your mastery of the nine learning objectives covering Carrier Requirements for the Air. This is an open reference book test and you may use any of the references that you have to assist you in successfully completing this test.

Instructions: Select the best answer from the four choices provided.

Question #1

A shipper is offering a package containing Calcium nitrate for transportation by air. What is the maximum net quantity per package allowed on a passenger aircraft?

A. 100 kg.
B. 12 kg.
C. 25 kg.
D. 35 kg.

Correct answer is C

Question #2

How many copies of the Shippers certification must accompany the shipment?

A. three
B. one
C. four
D. two

Correct answer is D

Question #3

Orientation arrows indicate the proper orientation of packages for _____ and storing.

A. loading
B. filling
C. marking
D. labeling

Correct answer is A

Question #4

Identify the item of information not required on the notice to the pilot in command.

A. Description of the hazardous materials
B. Name of the shipper
C. Location of the hazardous materials loaded on the aircraft
D. Total number of packages

Correct answer is B

Question #5

When using the segregation table for stowage compatibility in aircraft, the “x” means:

A. Okay to place the materials next to each other
B. Okay if package leaks
C. Classes may not be stored next to or in contact with each other
D. Classes are not allowed on aircraft

Correct answer is D

Question #6

Identify the label(s) required for the shipment of a package containing 75 kg. of Calcium nitrate for transportation on a cargo aircraft.

A. 5.1
B. 5.1 and Cargo Aircraft Only
C. 8
D. 5.1 and 4.3

Correct answer is B

Question #7

Identify the label(s) required for 12 kgs. of Calcium nitrate to be transported on a passenger aircraft.

A. 5.1
B. 6.1
C. 1.1
D. 2.1

Correct answer is A

Question #8

A shipper is offering a package containing Calcium nitrate for transportation on a cargo aircraft. What is the maximum allowable net quantity per package?

A. 25 kg.
B. 100 kg.
C. 50 kg.
D. 12 kg.

Correct answer is B

Question #9

The air carrier must verify that the shipper has _____.

A. properly prepared the shipping papers only
B. properly prepared the packages only
C. properly prepared both the shipping papers and packages
D. none of the above

Correct answer is C

Question #10

Which one of the following hazardous materials does not have to be stored in a location inaccessible to crewmembers during flight?

A. Class 7 materials
B. Class 3 materials with a flash point above 23 °C
C. Division 6.2 materials
D. Class 5 materials

Correct answer is D

Question #11

The operator of an aircraft carrying hazardous materials must do all of the following except:

A. Retain a copy of each notification of pilot-in-command if requested for up to 30 days
B. Provide accurate and legible written information
C. Provide an in flight copy of the written notification to pilot-in-command
D. Have a copy of each notification of pilot-in-command readily accessible at the airport of departure for the duration of the flight

Correct answer is A

Question #12

The air carrier must verify the markings on the package of Calcium nitrate. Identify the marking that is not required on a package.

A. Consignee or consignor
B. Hazard class
C. Proper shipping name
D. ID number

Correct answer is B

Question #13

In the HMR, "Cargo Aircraft Only" means the same thing as:

A. Passenger Aircraft
B. ORMD
C. Cargo Aircraft
D. Always means the same thing as "Cargo Aircraft," and sometimes means the same thing as "Passenger Aircraft"

Correct answer is C

Question #14

Which one of the following results of a hazmat incident is not required to be reported within 12 hours to the Centers for Disease Control (CDC) or the Nuclear Regulatory Commission (NRC)?

A. The temporary shutdown of an airport for 90 minutes
B. Death of a passenger
C. A change of destination airport
D. A fire that causes the release of a regulated medical waste

Correct answer is D