

General Awareness Training

THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

IATA 2022

INSTRUCTOR:

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Revised 2/06/2018



I.A.T.A. General Awareness Training

- International Air Transportation Association
 - Global reference for shipping Dangerous Goods AND the only reference recognized by the world's airlines
 - Founded in 1945 in Havana, Cuba
 - Originally 57 members from 31 nations, now over 230 members from more than 140 nations

I.A.T.A. General Awareness Training

- Mission
 - Represent, Lead and Serve the airline industry
 - Define all the Airline rules and regulations
 - Main focus is to provide the safe and secure transportation of all passengers and crew

I.A.T.A. General Awareness Training Objectives

- Enable employees working with or around dangerous goods to recognize and identify their dangers
- Properly mark and label dangerous goods containers for shipment
- Select proper packaging for dangerous goods under the direction of the Certified person
- Complete shipment declaration and AWB under the direction of the Certified person
- Develop appropriate response information to accompany shipment

I.A.T.A. General Awareness Training

- Who should take this class
 - Warehouse personnel
 - Operators (moving or handling material)
 - Customer Service
 - Other Office Employees working around D.G.
- Frequency / Requirements
 - Within 90 days of initial employment
 - Every 2 years

2013 Regulations Changes

54th Edition Dangerous Goods Regulations

(Reference only – Recurrent Training)

- **Applicability**
 - Administrative updates or clarifications
 - Training requirements and Instructor's qualifications
 - Incident and accident reporting by other than Operators (all)
- **Limitations (hand carry)**
 - Lithium batteries when contained in equipment
 - Revised minimum quantities
- **Classification**
 - New test criterias to verify Class 1 articles
 - Revised and clarified provisions for viscous flammable liquids
- **Identification**
 - Added 6 new 'chemicals under pressure'
 - Mercury has been assigned a toxic subsidiary risk
 - Clarified battery powered equipment and battery powered vehicles using lithium batteries
 - Clarified requirements chemicals under pressure and other chemicals

Revised 2/06/2018

2013 Regulations Changes

54th Edition Dangerous Goods Regulations

(Reference only – Recurrent Training)

- **Packing**

- Almost all instructions updated to include closed head drums (1A1, 1B1, etc...)
- Absorbent materials must absorb entire quantity of inner packaging
- Revised Mercury contents in manufactured articles
- Lithium battery requirements

- **Marking and Labeling**

- Minimum size markings (start in Jan. 2014)
- Lithium batteries must also include Class 9 Hazard label

2013 Regulations Changes

54th Edition Dangerous Goods Regulations

(Reference only – Recurrent Training)

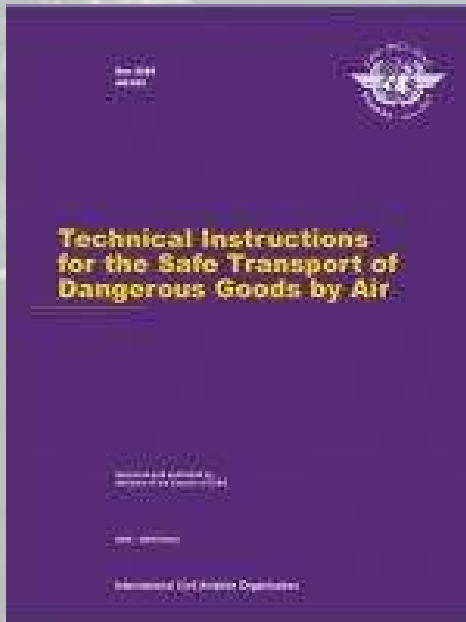
- **Documentation**

- Added information to declare HM in Air Waybill vs Shipper's Declaration
- Added requirements for additional information on Shipper's Declaration
- Revised reference to remove 'G' except in certain DG shipped in limited quantities

- **Handling**

- Reinforced that marks and labels must not be covered or obscured
- Added limitations of transporting certain DG by helicopters
- New reporting requirements for DG occurrences
- Recommendation for Operators to maintain documentation for non accepted shipments (packaging, documentation or other errors)

REGULATORY REFERENCES

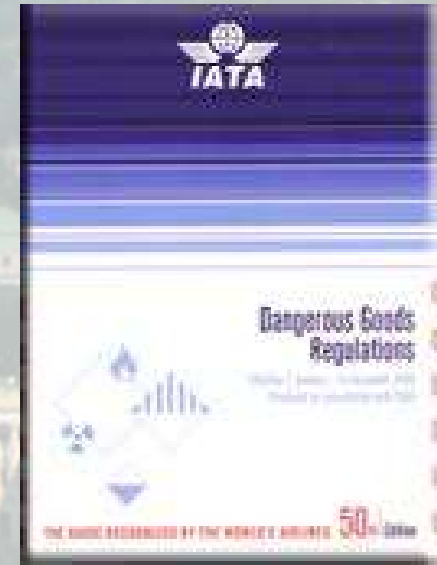


**ICAO Technical
Instructions**

**International Law
Recognized by 49CFR**



**49 CFR - United States
Hazardous Materials
Transportation Law**



**IATA DGR
Easy to use
manual
Based on ICAO**

Penalties for Non-Compliance



Civil

\$250 to \$50,000 per day/per violation

Criminal

Up to \$250,000 (Individual)

Up to \$500,000 (Corporation)

Up to 10 years in prison

Changes for 2023

IATA DGR

New additions to the Dangerous Goods List
(IATR DGR 4.2)

Revised Packing Instructions

Revised declassification provisions for
corrosives

Changes for 2023

IATA DGR

New additions to the Dangerous Goods List
(IATR DGR 4.2 continued)

REMOVAL OF THE LITHIUM BATTERY
TEST SUMMARY

For button cell batteries

Changes for 2023

IATA DGR

New additions to the Dangerous Goods List
(IATR DGR 4.2 continued)

Removal of phone number requirement on
lithium battery marking

Revised package performance guidelines

Which includes securing overpacks

Changes for 2023

IATA DGR

New additions to the Dangerous Goods List
(IATR DGR 4.2 continued)

Revised package performance guidelines

Which includes securing overpacks

Revised quantity limits for UN2794, UN2795,
and UN3292

Changes for 2023

IATA DGR

New additions to the Dangerous Goods List
(IATR DGR 4.2 continued)

Clarification on requirements for excepted quantities for dangerous goods

Extension of Dangerous Goods transitional periods until December 31, 2024

SHIPPER RESPONSIBILITIES

A silhouette of a person wearing a cap and pushing a cart loaded with several boxes. The person is walking from left to right. The background is a light blue gradient.

Identification

Classification

Packing

Marking

Labeling

Documentation

Training

OPERATOR RESPONSIBILITIES

Acceptance

Storage and Loading

Inspection of information

Retention of Records

Training



2013
DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT

The recommended checklist appearing on the following pages is intended to verify shipments at origin.

Never accept or refuse a shipment before all items have been checked.

Is the following information correct for each entry?

SHIPPER'S DECLARATION FOR DANGEROUS GOODS (DGD)

	YES	NO*	N/A
1. Two copies in English and in the IATA format including the air certification statement [8.1.1, 8.1.2, 8.1.6.12]	<input type="checkbox"/>	<input type="checkbox"/>	
2. Full name and address of Shipper and Consignee [8.1.6.1, 8.1.6.2]	<input type="checkbox"/>	<input type="checkbox"/>	
3. If the Air Waybill number is not shown, enter it. [8.1.6.3]	<input type="checkbox"/>	<input type="checkbox"/>	
4. The number of pages shown [8.1.6.4]	<input type="checkbox"/>	<input type="checkbox"/>	
5. The non-applicable Aircraft Type Deleted or not shown [8.1.6.5]	<input type="checkbox"/>	<input type="checkbox"/>	
6. If full name of Airport or City of Departure or Destination is not shown, enter it. [8.1.6.6 and 8.1.6.7] Information is optional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The word "Radioactive" deleted or not shown [8.1.6.8]	<input type="checkbox"/>	<input type="checkbox"/>	
Identification			
8. UN or ID Number, preceded by prefix [8.1.6.9.1, Step 1]	<input type="checkbox"/>	<input type="checkbox"/>	
9. Proper Shipping Name and the technical name in brackets for asterisked entries [8.1.6.9.1, Step 2]	<input type="checkbox"/>	<input type="checkbox"/>	
10. Class or Division, and for Class 1, the Compatibility Group, [8.1.6.9.1, Step 3]	<input type="checkbox"/>	<input type="checkbox"/>	
11. Subsidiary Risk, in parentheses, immediately following Class or Division [8.1.6.9.1, Step 4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Packing Group [8.1.6.9.1, Step 5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quantity and Type of Packing			
13. Number and Type of Packages [8.1.6.9.2, Step 6]	<input type="checkbox"/>	<input type="checkbox"/>	
14. Quantity and unit of measure (net, or gross followed by "G", as applicable) within per package limit [8.1.6.9.2, Step 6]	<input type="checkbox"/>	<input type="checkbox"/>	
15. When different dangerous goods are packed in one outer packaging, the following rules are complied with:			
- Compatible according to Table 9.3.A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- UN packages containing Division 6.2 [5.0.2.11(c)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- "All packed in one (type of packaging)" [8.1.6.9.2, Step 6(f)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Calculation of "Q" value must not exceed 1 [5.0.2.11 (g) & (h); 2.7.5.6; 8.1.6.9.2, Step 6(g)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Overpack			
- Compatible according to Table 9.3.A. [5.0.1.5.1 and 5.0.1.5.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Wording "Overpack Used" [8.1.6.9.2, Step 7]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packing Instructions			
17. Packing Instruction Number [8.1.6.9.3, Step 8]	<input type="checkbox"/>	<input type="checkbox"/>	
Authorizations			
18. Check all verifiable special provisions. The Special Provision Number if A1, A2, A51, A81, A88, A99 or A130 [8.1.6.9.4, Step 9]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Indication that governmental authorization is attached, including a copy in English and additional approvals for other items under [8.1.6.9.4, Step 9]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional Handling Information			
20. The mandatory statement shown for self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, or samples thereof, for PBE and for fireworks [8.1.6.11.1, 8.1.6.11.2, 8.1.6.11.3 and 8.1.6.11.5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Name and Telephone Number of a responsible person for Division 6.2 Infectious Substance shipment [8.1.6.11.4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Name and Title (or Department) of Signatory, Place and Date indicated and Signature of Shipper [8.1.6.13, 8.1.6.14 and 8.1.6.15]	<input type="checkbox"/>	<input type="checkbox"/>	
23. Amendment or alteration signed by Shipper [8.1.2.6]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Dangerous Goods
 Checklist for a
 Non-Radioactive
 Shipment
 (pdf version is
 included in the
 handouts)

Dangerous Goods Checklist for a Non-Radioactive Shipment

(pdf version is included in the handouts)

	YES	NO*	N/A
AIR WAYBILL—HANDLING INFORMATION			
24. The statement: "Dangerous goods as per attached Shipper's Declaration" or "Dangerous Goods as per attached DGD" [8.2.1(a)]	<input type="checkbox"/>	<input type="checkbox"/>	
25. "Cargo Aircraft Only" or "CAO", if applicable [8.2.1(b)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Where non-dangerous goods are included, the number of pieces of dangerous goods shown [8.2.2] ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PACKAGE(S) AND OVERPACKS			
27. Packaging conforms with packing instruction and is free from damage or leakage [The relevant PI and 9.1.3]	<input type="checkbox"/>	<input type="checkbox"/>	
28. Same number and type of packagings and overpacks delivered as shown on DGD [9.1.3]	<input type="checkbox"/>	<input type="checkbox"/>	
Markings			
29. UN Specification Packaging, marked according to 6.0.4 and 6.0.5:			
- Symbol and Specification Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- X, Y or Z meets or exceeds Packing Group/Packing Instruction requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Gross Weight within limits (Solids, Inner Packagings or IBCs [SP A179])	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Infectious substance package marking [8.5.3.1]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. The UN or ID number(s) [7.1.5.1(a)]	<input type="checkbox"/>	<input type="checkbox"/>	
31. The Proper Shipping Name(s) including technical name where required [7.1.5.1(a)]	<input type="checkbox"/>	<input type="checkbox"/>	
32. The full name(s) and Address(es) of Shipper and Consignee [7.1.5.1(b)]	<input type="checkbox"/>	<input type="checkbox"/>	
33. For consignments of more than one package of all classes (except ID 8000 and Class 7) the net quantity, or gross weight followed by "G", as applicable, unless contents are identical, marked on the packages [7.1.5.1(c)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Carbon Dioxide, Solid (Dry Ice), the net quantity marked on the packages [7.1.5.1(d)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. The Name and Telephone Number of a responsible person for Division 6.2 Infectious Substances shipment [7.1.5.1(e)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. The Special Marking requirements shown for Packing Instruction 202 [7.1.5.1(f)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Limited Quantities mark [7.1.5.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. The Environmentally Hazardous Substance Mark [7.1.6.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labelling			
39. The label(s) identifying the Primary risk as per 4.2, Column D [7.2.3.2; 7.2.3.3(b)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. The label(s) identifying the Subsidiary risk, as per 4.2, Column D [7.2.3.2; 7.2.6.2.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Cargo Aircraft Only label [7.2.4.2; 7.2.6.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. "Orientation" labels on two opposite sides, if applicable [7.2.4.4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. "Cryogenic Liquid" labels, if applicable [7.2.4.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. "Keep Away From Heat" label, if applicable [7.2.4.5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. All required labels are displayed correctly [7.2.6] and all irrelevant marks and labels removed or obliterated [7.1.1; 7.2.1]	<input type="checkbox"/>	<input type="checkbox"/>	
For Overpacks			
46. Packaging Use markings and hazard and handling labels, as required must be clearly visible or reproduced on the outside of the overpack [7.1.4.1, 7.2.7]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. The word "Overpack" marked if markings and labels are not visible [7.1.4.1]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. If more than one overpack is used, identification marks shown and total quantity of dangerous goods [7.1.4.2]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. "Cargo Aircraft Only" restrictions [5.0.1.5.3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GENERAL			
50. State and Operator variations complied with [2.8]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments: _____			

Checked by: _____			
Place: _____		Signature: _____	
Date: _____		Time: _____	
Revised 2/06/2018			

* IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.

I.A.T.A.

Dangerous Goods Handling

- SDS (Safety Data Sheet)
 - Documents that contain important information regarding the product they accompany. They are intended to provide workers and emergency personnel with procedures for handling or working with that dangerous substance in a safe manner, and include information such as physical data (melting point, boiling point, flash point, etc.), toxicity health effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures and fire handling procedures

PACKING GROUPS

(Degree of Danger posed by the Dangerous Good or Hazardous Material)

PACKING GROUP I – GREAT DANGER

PACKING GROUP II – MEDIUM DANGER

PACKING GROUP III – MINOR DANGER



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I.A.T.A. Packaging Requirements

- Substances **MUST** be compatible with their packaging
- Metal packagings must be corrosion resistant or with protection against corrosion for substances with a Class 8 subsidiary risk
- **NON COMPATIBLE DANGEROUS GOODS MUST NOT BE PACKAGED IN THE SAME CONTAINER**



- 2017 Lithium Battery Guidance
- Document
- *Transport of Lithium Metal and Lithium Ion Batteries*
- *Revised for the 2017 Regulations*
- *Included in your PDF downloads*



- Lithium Battery – The term “lithium battery” refers to a family of batteries with
- different chemistries, comprising many types of cathodes and electrolytes.
- For the purposes of the DGR they are separated into:



- **Lithium metal batteries. Are generally primary (non-rechargeable) batteries that**
- have lithium metal or lithium compounds as an anode. Also included within lithium
- metal are lithium alloy batteries. Lithium metal batteries are generally used to power
- devices such as watches, calculators, cameras, temperature data loggers, car key
- fobs and defibrillators.



- **Note:**
- *Lithium metal batteries packed by themselves (not contained in or packed with*
- *equipment) (Packing Instruction 968) are forbidden for transport as cargo on*
- *passenger aircraft unless shipped under exemption issued by all States concerned,*
- *see Special Provision A201. Classification (DGR 3.9.2.6)*



- **Note:**
- Lithium batteries are classified in Class 9 – Miscellaneous dangerous goods as:
 - UN 3090, **Lithium metal batteries; and**
 - UN 3480, **Lithium ion batteries**



- **Note:**
- If inside a piece of equipment or packed separately with a piece of equipment to power that equipment as:
 - **UN 3091, Lithium metal batteries contained in equipment; or**
 - **UN 3091, Lithium metal batteries packed with equipment; and**



- ***Note:***
- • **UN 3481, Lithium ion batteries contained in equipment; or**
- • **UN 3481, Lithium ion batteries packed with equipment.**



- **Prohibitions**
- ***Lithium ion batteries***
- All lithium ion cells and batteries shipped by themselves (UN 3480) are forbidden for transport as cargo on passenger aircraft. All packages prepared in accordance with Packing Instruction 965, Section IA, IB and II, must bear a Cargo Aircraft Only label, in addition to existing marks and/or labels.



- **Prohibitions**
- ***Lithium metal batteries***
- All lithium metal cells and batteries shipped by themselves (UN 3090) are forbidden
- for transport as cargo on passenger aircraft.
All packages prepared in accordance
- with Packing Instruction 968, Section IA, IB and II, must bear a Cargo Aircraft Only



- **Prohibitions**
- ***Lithium metal batteries***
- All lithium metal cells and batteries shipped by themselves (UN 3090) are forbidden
- for transport as cargo on passenger aircraft.
All packages prepared in accordance
- with Packing Instruction 968, Section IA, IB and II, must bear a Cargo Aircraft Only label, in addition to existing marks and/or labels.



- **Restrictions**
- ***Lithium ion batteries***
- All lithium ion cells and batteries (UN 3480 only) must be shipped at a state of charge
- State of Charge (SoC) not exceeding 30% of their rated design capacity. Cells and/or batteries at a SoC of greater than 30% may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities, see Special Provision A331



- **Restrictions**
- ***Lithium ion batteries***
- All lithium ion cells and batteries (UN 3480 only) must be shipped at a state of charge
- State of Charge (SoC) not exceeding 30% of their rated design capacity. Cells and/or batteries at a



Special Provision A331.

- UN 3480, Lithium ion batteries has been amended to show “forbidden” across columns I/J to identify that these batteries are now restricted to Cargo Aircraft Only. This change became effective 1 April 2016 through an addendum to the 57th edition of the DGR.



Special Provision A331.

There is no change to the entries for UN 3481, lithium ion batteries packed with equipment or lithium ion batteries contained in equipment; ● all entries for lithium batteries, UN 3090, UN 3091, UN 3480 and UN 3481 have been revised to identify that the hazard label has changed to now be the lithium battery Class 9 label. A new Special Provision A206 has also been assigned to reinforce this new requirement.



49 CFR 173.217 Carbon dioxide, solid (dry ice).

- (a) Carbon dioxide, solid (dry ice), when offered for transportation or transported by aircraft or water, must be packed in packagings designed and constructed to permit the release of carbon dioxide gas to prevent a buildup of pressure that could rupture the packagings. Packagings must conform to general packaging requirements of subpart B of this part but need not conform to the requirements of part 178 of this subchapter.



49 CFR 173.217 Carbon dioxide, [solid](#) (dry ice).

- **Transportation by aircraft:**
- **(1)** In addition to the applicable [marking](#) requirements in subpart D of part 172, the net mass of the carbon dioxide, [solid](#) (dry ice) must be marked on the outside of the [package](#). This provision also applies to [unit load devices](#) (ULDs) when the ULD contains dry ice and is considered the [packaging](#).



49 CFR 173.217 Carbon dioxide, solid (dry ice).

- **Transportation by aircraft:**
- **(2)** The shipper must make arrangements with the operator for each shipment.
- **(3)** The quantity limits per package shown in columns (9A) and (9B) of the Hazardous Materials Table in § 172.101 of this subchapter are not applicable to dry ice being used as a refrigerant for other than hazardous materials loaded in a unit load device.



49 CFR 173.217 Carbon dioxide, solid (dry ice).

- **Transportation by aircraft:**

In such a case, the unit load device must be identified to the operator and allow the venting of the carbon dioxide gas to prevent a dangerous build-up of pressure.

- **(4)** Dry ice is excepted from the shipping paper requirements of subpart C of part 172 of this subchapter provided: alternative written documentation is supplied containing the following information:



49 CFR 173.217 Carbon dioxide, solid (dry ice).

- **Transportation by aircraft:**

proper shipping name (Dry ice or Carbon dioxide, solid), class 9, UN number 1845, the number of packages, and the net quantity of dry ice in each package. The information must be included with the description of the materials.



49 CFR 173.217 Carbon dioxide, solid (dry ice).

- **Transportation by aircraft:**
- **(5)** Carbon dioxide, solid (dry ice), in quantities not exceeding 2.5 kg (5.5 pounds) per package and used as a refrigerant for the contents of the package is excepted from all other requirements of this subchapter if the requirements of paragraph (a) of this section are complied with and:



49 CFR 173.217 Carbon dioxide, solid (dry ice).

- **Transportation by aircraft:**
- the package is marked “Carbon dioxide, solid” or “Dry ice”, is marked with the name of the contents being cooled, and is marked with the net weight of the dry ice or an indication that the net weight is 2.5 kg (5.5 pounds) or less.

Excepted Quantities

- An **excepted quantity** is the maximum quantity per inner and outer packaging for transporting dangerous goods as excepted quantities. The quantity limit can be found in the column **7b** of the UN [Dangerous Goods List](#). **7b** does not directly list the max quantity per inner and outer packaging. Instead, **7b** gives various E codes (E0~E5). By referring to the table on the next slide, you can find out allowed excepted quantity.

Excepted Quantities

Code	Maximum net quantity per inner packaging (in grams for solids and ml for liquids and gases)	Maximum net quantity per outer packaging (in grams for solids and ml for liquids and gases, or sum of grams and ml in the case of mixed packing)
E0	Not permitted as Excepted Quantity	
E1	30	1000
E2	30	500
E3	30	300
E4	1	500
E5	1	300

Excepted Quantities

- UN-approved packages are not required;
- Dangerous goods hazard symbols are not required;
- Packages must pass drop tests and stacking tests;
- Total number of packages carried on any one cargo transport unit shall not exceed 1000;
- Outer package must bear excepted quantities mark;
- A statement "Dangerous Goods in Excepted Quantities" and number of packages shall be included in a shipping document.

Excepted Quantities

- **49 CFR § 173.4a Excepted quantities.**
- **(a)** Excepted quantities of materials, other than articles (e.g., aerosols), are not subject to requirements of this subchapter except for:
 - **(1)** The shipper's responsibilities to properly class their material in accordance with § 173.22 ;

Excepted Quantities

- **§ 173.4a Excepted quantities.**
- **(2)** Sections [171.15](#) and [171.16](#) of this subchapter pertaining to the reporting of incidents; and
- **(3)** For a [Class](#) 7 (Radioactive) material the requirements for an excepted [package](#).
- **(4)** [Packagings](#) for which retention of [liquid](#) is a basic function must be capable of withstanding without leakage the pressure differential specified in [§ 173.27\(c\)](#) .

Excepted Quantities

- **§ 173.4a Excepted quantities.**
- **(b) Authorized materials.** Only materials authorized for transport aboard passenger aircraft and appropriately classed within one of the 9 hazard classes or divisions may be transported in accordance with this section:
- **No Class 1 Division 1,2,3,4,5,6** are listed in 49 CFR 173.4. 2.2 material with no subsidiary hazard. An aerosol is not included as

Excepted Quantities

- **§ 173.4a Excepted quantities.**
- Division 2.2 material with no subsidiary hazard.
- **(2)** Class 3 materials;
- **(3)** Class 4 (PG II and III) materials except for self-reactive materials;
- **(4)** Division 5.1 (PG II and III);
- **(5)** Division 5.2 materials only when contained in a chemical kit, first aid kit or a polyester resin kit.

Excepted Quantities

- **§ 173.4a Excepted quantities.**
- **(6)** Division 6.1, other than PG I, Hazard Zone A or B material;
- **(7)** Class 7, Radioactive material in excepted packages
- **(8)** Class 8 (PG II and III), except for UN2803 (Gallium) and UN2809 (Mercury); and

Excepted Quantities

- § 173.4a Excepted quantities.
- (9) Class 9, *except for UN1845 (Carbon dioxide, solid or Dry ice), and lithium batteries and cells.*

Excepted Quantities

- **§ 173.4a Excepted quantities.**
- **(c) *Inner packaging limits.*** The maximum quantity of hazardous materials in each inner packaging is limitations as outlined by **§ 173.4a**
- **(d) *Outer packaging aggregate quantity limits.*** The maximum aggregate quantity of hazardous material contained in each outer packaging must not exceed the limits provided in **173.4a** as well.

Excepted Quantities

- **§ 173.4a Excepted quantities.**
- **(e)Packaging materials.** Packagings used for the transport of excepted quantities must meet the following:
 - **(1)** Each inner receptacle must be constructed of plastic, or of glass, porcelain, stoneware, earthenware or metal. When used for liquid hazardous materials, plastic inner packagings must have a thickness of not less than 0.2 mm (0.008 inch).
 - **(2)** Each inner packaging with a

CLASSIFICATIONS

(Risk to Health, Safety, Property or Environment)

1. Explosives
2. Gases
3. Flammable Liquids
4. Flammable Solids
5. Oxidizers and Organic Peroxides
6. Toxic and Infectious Substances
7. Radioactive Materials
8. Corrosive Materials
9. Miscellaneous Dangerous Goods

Class 1 - Explosives



Class 2 Gases

2.1 Flammable gas



2.2 Non-flammable gas



2.3 Toxic gas



Class 3 Flammable liquid



Class 4 Flammable solid

4.1 Flammable solid



4.2 Spontaneously Combustible



4.3 Dangerous When Wet



Class 5 Oxidizers & Organic Peroxides

5.1 Oxidizer



5.2 Organic Peroxide



Class 6 Toxic & Infectious Substances

6.1 Toxic Substances

6.2 Infectious substances

Infectious substances - substances known to contain, or reasonably expected to contain, pathogens.



Class 7 Radioactive Materials



Category I

black text
on white label
I red



Category II

black text
upper yellow
II red



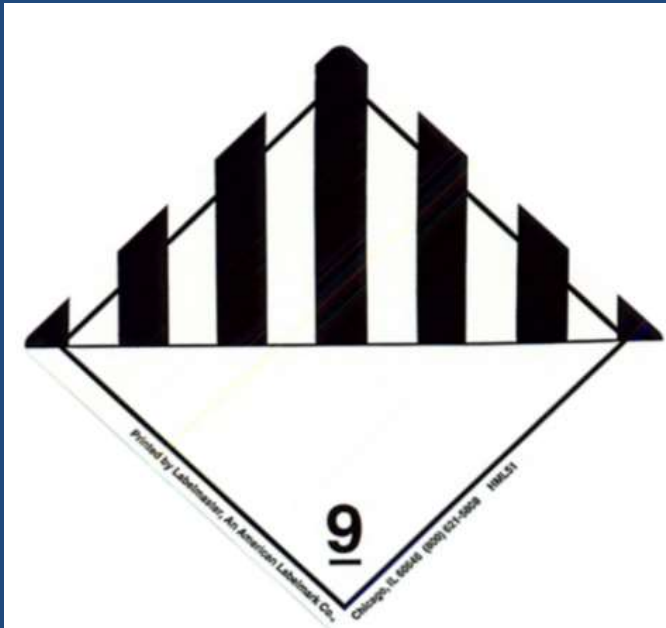
Category III

black text
upper yellow
III red

Class 8 - Corrosive Materials



Class 9 Miscellaneous Dangerous Goods



Also included in Class 9:

- Aviation Regulated Solid or Liquid (3.9.2.1).
- Elevated Temperature Substance (3.9.2.3).
- Miscellaneous articles and substances (3.9.2.6).



Using the Alphabetical List of Dangerous Goods

(Used by I.A.T.A.Certified Personnel only)

UN/ ID no.	Proper Shipping Name/Description	Class or Div. (Sub Risk)	Hazard Label(s)	PG	EQ see 2.7	Passenger and Cargo Aircraft				Cargo Aircraft Only		S.P. see 4.4	ERG Code
						Ltd Qty		Pkg Inst	Max Net Qty/Pkg	Pkg Inst	Max Net Qty/Pkg		
						Pkg Inst	Max Net Qty/Pkg						
A	B	C	D	E	F	G	H	I	J	K	L	M	N
1500	Sodium nitrite Sodium nitrite and potassium nitrate mixture, see Potassium nitrate and sodium nitrite mixture (UN 1487)	5.1 (6.1)	Oxidizer & Toxic	III	E1	Y516	10 kg	516	25 kg	518	100 kg		5P

Packaging types

Single



Combination



Composite



Revised 2/06/2018

Packaging Markings

A three-part code indicates the type of packaging

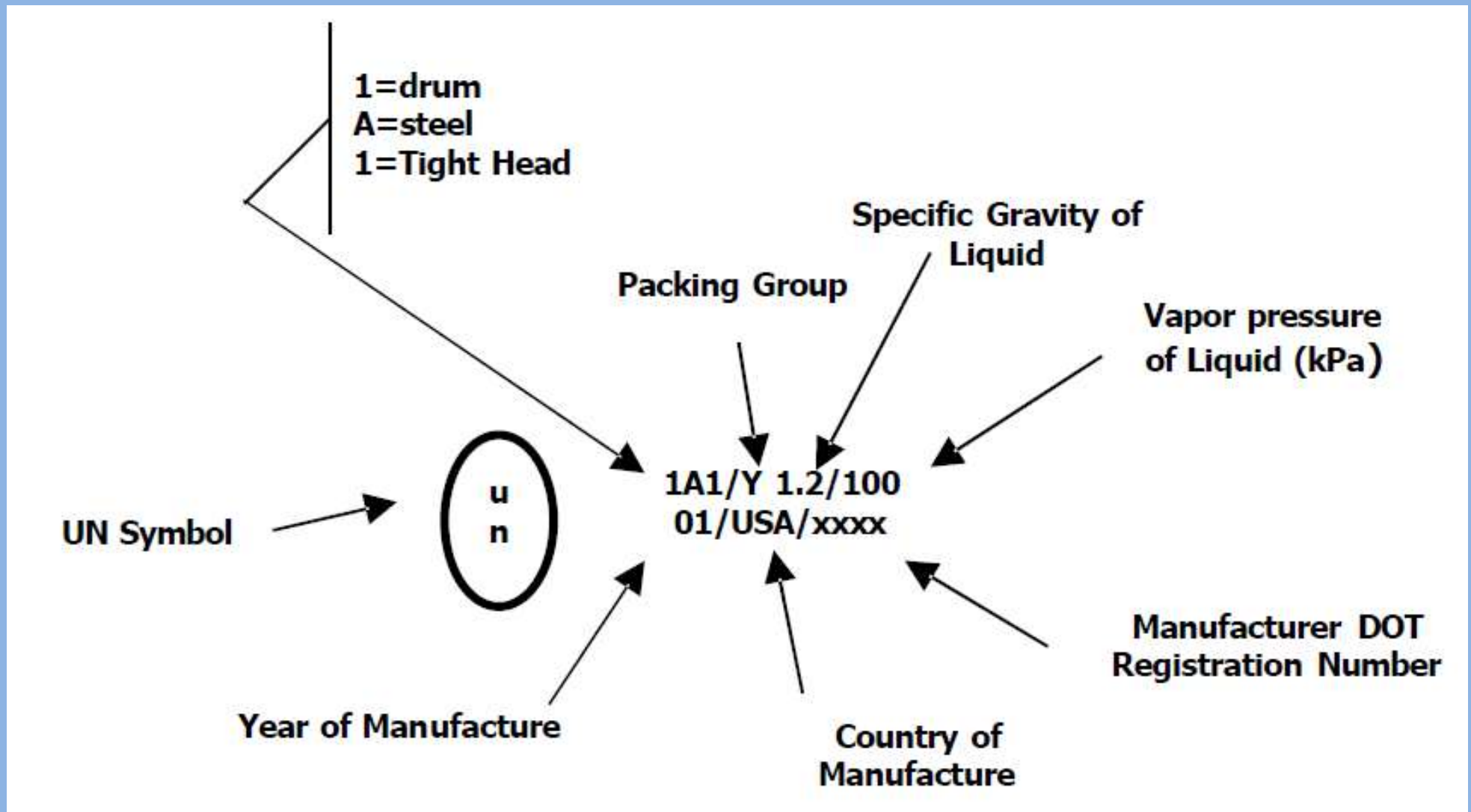
1. Drums
2. Barrels
3. Jerricans
4. Boxes
5. Bags
6. Composite

- A. Steel
- B. Aluminum
- C. Wood
- G. Fibre
- H. Plastic

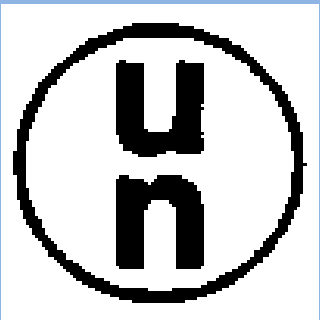
1. Closed Head
2. Open Head

Packaging Markings

Example markings for a liquids drum



Combination Packaging



4G/Y20/S/09
USA/CM0405



Single Packaging Intended To Contain Liquids



1A1/Y1.4/150/08/NL/RM0709



Revised 2/06/2018

UN Specification Packaging Intended for Infectious Substances



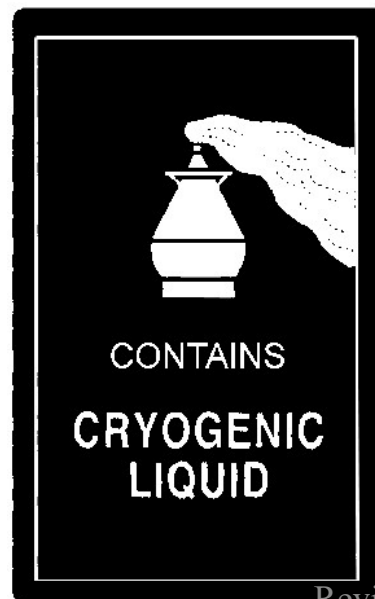
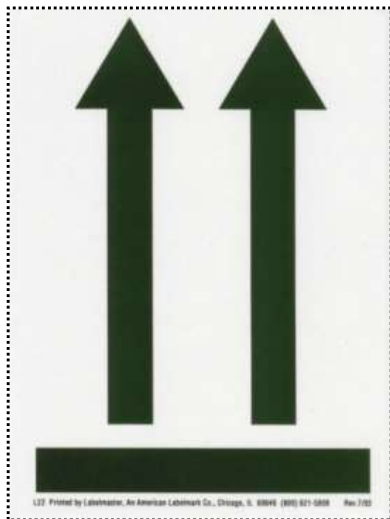
4G/CLASS 6.2/09

USA/HAZ PACKING CO.



Revised 2/06/2018

Handling Labels



Example of a Completed Package

To:
From:

Sodium Nitrite
UN1500



4G/Y20/S/09
USA/T7402

DOCUMENTATION

- **2 Key Documents must accompany Dangerous Goods shipments**
 - **Air Way Bill (AWB)**
 - **Dangerous Goods Declaration**

Must Be Signed and dated by the Shipper or his agent (I.A.T.A. Certified Person)

A type written signature is not allowed

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least two copies to the airline.)

Shipper Chemicals R - Us 1823 Starlight Drive Yuma, AZ 85365 USA					Air Waybill No. 1234567890		
Consignee Chemicals R-Us 132 St. Vincent Street Port of Spain, Trinidad					Page 1 of 1 Pages		
Two completed and signed copies of this Declaration must be handed to the operator.					Shipper's Reference No. (optional)		
TRANSPORT DETAILS					[section block for optional use for company logo, name, and address]		
This shipment is within the limitations prescribed for: (delete non-applicable)					WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder, or an IATA cargo agent.		
PASSENGER AND CARGO AIRCRAFT		CARGO AIRCRAFT ONLY		Airport of Departure: Yuma		Shipment Type: (delete non-applicable)	
Airport of Destination: Port of Spain					NON-RADIOACTIVE		RADIOACTIVE
NATURE AND QUANTITY OF DANGEROUS GOODS							
Dangerous Goods Identification							
UN or ID No.	Proper Shipping Name	Class or Division	Packing Group	Subsidiary Risk	Quantity and Type of Packing	Packing Inst.	Authorization
UN 1500	Sodium Nitrite	5.1 (6.1)	III		One Fibreboard box x 8 kg	516	
ADDITIONAL HANDLING INFORMATION: "Prior arrangements as required by IATA Dangerous Goods Regulations 1.3.3.1 have been made." Prepared according to ICAO/IATA.							
24hr. Emergency Contact No. 01.520.555.1212							
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked, labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national government regulations.					Name/Title of Signatory Jessica Pounds/Shipping Clerk		
					Place and Date Yuma/08 Mar 2013		
					Signature (see WARNING above) Jessica Pounds		
FOR RADIOACTIVE MATERIAL SHIPMENT ACCEPTABLE FOR PASSENGER AIRCRAFT: THE SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN OR INCIDENT TO RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.							

Example of Completed Shipper's Dangerous Goods Declaration

EMERGENCY RESPONSE INFORMATION

Proper Basic Description of HM

Immediate Hazards to Health

Risk of Fire/Explosion

Immediate Precautions (Accident/Incident)

Immediate Methods for Handling Fires

**Initial Methods for Handling Spills/Leaks
(No Fire)**

Preliminary First Aid Measures

EMERGENCY RESPONSE TELEPHONE NUMBER

Includes Area OR International Access Code

**No '1-800' Numbers that do not work
outside the U.S.**

Entered In A Clearly Visible Location

Answered/Monitored 24 Hours A Day

Person Must be Knowledgeable

**Must Be the Number Of the Person Offering
Material**



Emergency Response Guide Page

GUIDE
129

FLAMMABLE LIQUIDS
(POLAR/WATER-MISCIBLE/NOXIOUS)

ERG2012

ERG2012

FLAMMABLE LIQUIDS
(POLAR/WATER-MISCIBLE/NOXIOUS)

GUIDE
129

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE:** Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO₂, water spray or alcohol-resistant foam.
- **Do not use dry chemical extinguishers to control fires involving nitromethane or nitroethane.**

Large Fire

- Water spray, fog or alcohol-resistant foam.
- **Do not use straight streams.**
- Move containers from fire area if you can do it without risk.

Fire Involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

DOCUMENTATION - Airway Bill

012- [REDACTED] INTERNATIONAL AIR WAYBILL 0 [REDACTED]

Shipper's Name and Address [REDACTED] Shipper's Account Number [REDACTED]

Air Waybill

Northwest Airlines, Inc.
St. Paul, Minnesota 55111

NORTHWEST CARGO

Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity.

It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and paying a supplemental charge if required.

Consignee's Name and Address [REDACTED] Consignee's Account Number [REDACTED]

Issuing Carrier's Agent Name and City [REDACTED] Accounting Information [REDACTED]

Agent's IATA Code [REDACTED] Account No. [REDACTED]

Airport of Departure (Addr. of First Carrier) and Requested Routing [REDACTED]

to	By first Carrier	Routing and Predestination	to	By	to	By	Currency	Declared Value for Carriage	Declared Value for Customs
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Amount of Insurance [REDACTED] INSURANCE: If Carrier offers insurance, and such insurance is requested in accordance with conditions on reverse hereof, indicate amount to be insured in figures in box marked "Amount of Insurance"

Handling Information: These commodities licensed by the United States for ultimate destination. Diversion contrary to United States law prohibited.

No. of Pieces/CTN	Gross Weight	Net Wt.	Rate Class	Chargeable Weight	Rate	Charge	Total	Nature and Quantity of Goods, Units, Dimensions or Volume
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Prepaid [REDACTED] Weight Charge [REDACTED] Collect [REDACTED] Other Charges [REDACTED]

A Valuation Charge [REDACTED]

D Tax [REDACTED]

Total Other Charges Due Agent [REDACTED]

Total Other Charges Due Carrier [REDACTED]

Total Prepaid [REDACTED] Total Collect [REDACTED]

Currency Conversion Rates [REDACTED] CC Charges in Dest. Currency [REDACTED]

For Carrier's Use only at Destination [REDACTED] Charges at Destination [REDACTED]

Signature of Shipper Above and Initial Applicable Box Below

THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS REGULATED IN AIR TRANSPORT. THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS REGULATED IN AIR TRANSPORT.

Executed on (date) [REDACTED] at (place) [REDACTED] Signature of Issuing Carrier or its Agent [REDACTED]

Revised 2/06/2018 012- 7889 8245

ORIGINAL 3 (FOR SHIPPER)

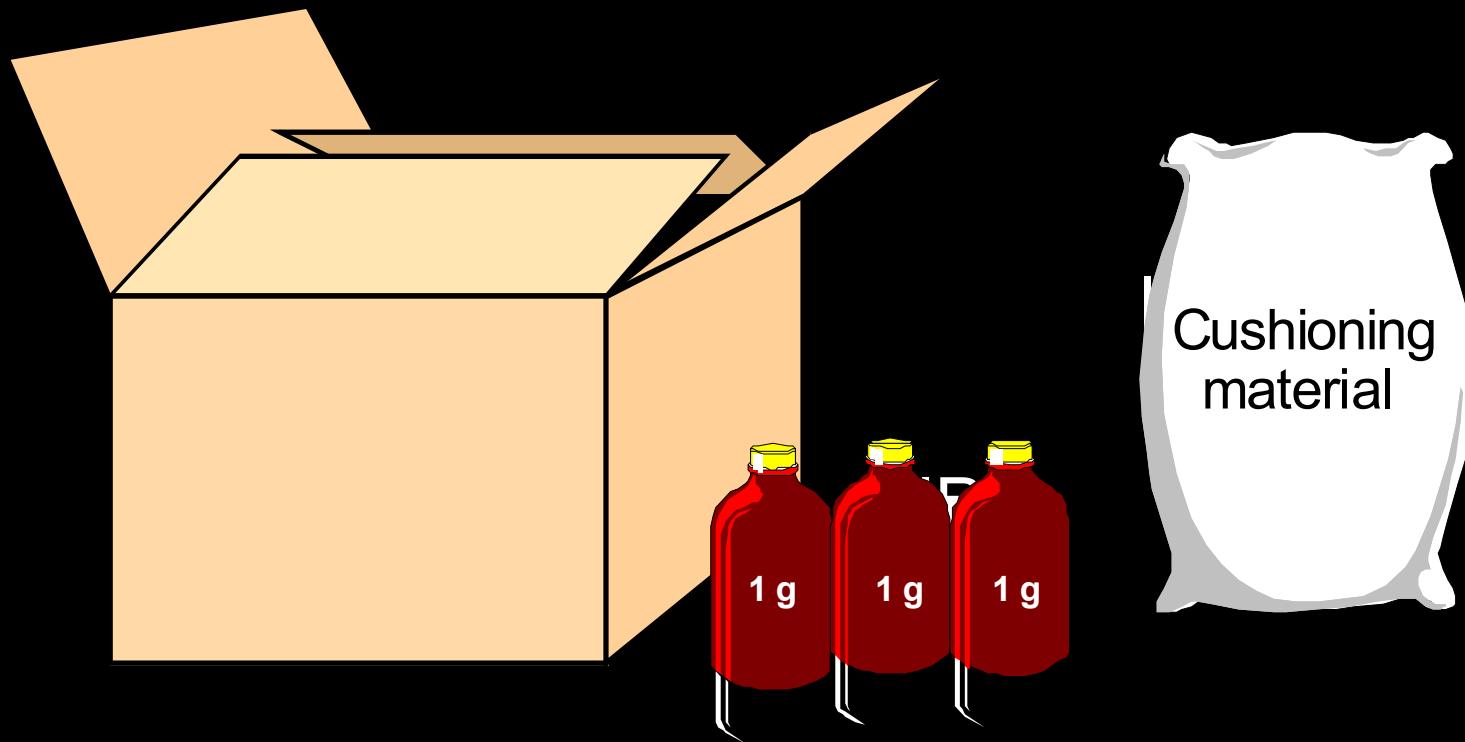
FORM NO. 5-1045 J/91

1



2

Dangerous Goods in Excepted Quantities



TBS/JMW



Revised 2/06/2018



Revised 2/06/2018



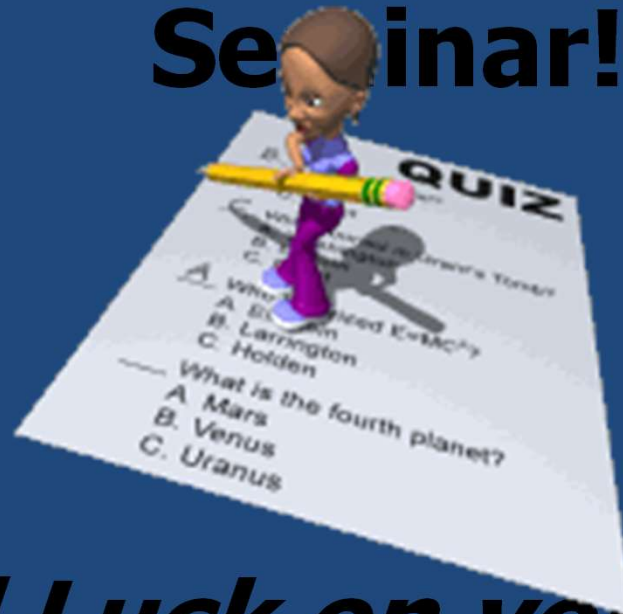
Revised 2/06/2018

An aerial photograph showing a large-scale industrial accident site. The scene is dominated by a large, dark, irregularly shaped area of disturbed earth and debris, likely a collapsed structure or a large spill. In the foreground, several large trucks are overturned or heavily damaged. A prominent white and red truck is in the lower center, and a yellow truck is to its right. Other vehicles are scattered across the site, some appearing to be overturned. The background shows a green field with a white boundary line, possibly a sports field or a designated area. The overall scene is one of significant destruction and chaos.

Questions?

Revised 2/06/2018

Thank you for attending a Du-All Safety Training Seminar!



Good Luck on your Exam!



Exam

1. T F The IATA Dangerous Goods Regulations is an easy to interpret and use manual based on ICAO
2. T F Shipper's declarations must be kept for at least 3 months
3. T F I.A.T.A requires initial DGR training within 90 days of initial employment, General Awareness Training and re-certifications every 2 years

Exam

- 4. T F There are no fines for non compliance, only warnings and shipment delays
- 5. T F There are three Packaging Groups (I, II & III)
- 6. T F Non compatible Dangerous Goods may be packed within the same outer packaging
- 7. T F There are 10 Classifications of Dangerous Goods

Exam

8. T F The Alphabetical List of Dangerous Goods MUST be checked by I.A.T.A. Certified Person on duty to ensure compliance
9. T F Handling labels assist everyone handling dangerous goods and must be used
10. T F There are two key documents that must accompany a Dangerous Goods Shipment. The AWB and the Dangerous Goods Declaration



Questions?



- Class: IATA General Awareness Training
- Instructor: Sean Halpin
- Contact: (510) 651-8289; du-all.com
- Fax Sign-In Sheets to (510) 651-8937 or safety@du-all.com



Revised 2/06/2018