US DEPARTMENT OF TRANSPORTATION TRAINING SHIPMENT BY GROUND

DOT Outline

- Hazardous materials classification
- Proper Shipping Description (172.101)/shipping papers
- Marking/Labeling
- Packaging
- Placarding
- ER
- Loading/unloading
- Accidents
- Security

Hazardous Materials

Hazardous materials: All materials regulated by the DOT, 172.101

Hazardous Substances (RQ's): All are regulated by DOT, but only in certain quantity (172.101 Table 1 to Appendix A).

Hazardous Waste: A subset of hazardous materials, defined by EPA.

State Wastes: Vary from State to State and may included items not EPA or DOT regulated.

Categories of Hazardous Substances

A hazardous substance is a material that is:

- listed in Table 1 - Appendix A to the HMT.
- shipped in one package, in a quantity which equals or exceeds the Reportable Quantity or RQ, also found in Table 1 – Appendix A to the HMT.
- a mixture or solution in a concentration by weight, which equals or exceeds the concentration shown in the Table found within the definition of a hazardous substance in §171.8.

§172.101 Hazardous Materials Table

Haza...	(9) limitations		(10) Vessel stowage	
		Cargo air-craft only	Location	Other
		(9B)	(10A)	(10B)
Acetic		30 L	A	40
Aceton		60 L	B	

TABLE 1 TO APPENDIX A.–HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES

Hazardous substance	Reportable quantity (RQ) pounds (kilo grams)
Acetic acid, lead (2+) salt	10 (4.54)
Acetic acid, thallium (I+) salt	1000 (454)
Acetic anhydride	5000 (2270)
Acetone	5000 (2270)
Acetone cyanohydrin	10 (4.54)
Acetonitrile	5000 (2270)
Acetophenone	5000 (2270)
2-Acetylaminofluorene	1 (0.454)

§171.8

Table 1, App A to §172.101

DOT Hazard Classes

- Class 1-Explosive (1.1-1.6)
- Class 2-Gasses (2.1-2.3)
- Class 3-Flammable liq
- Class 4-Flammable solids (4.1-4.3)
- Class 5-Oxy/OP (5.1,5.2)

Class 6-Poison (6.1-6.2)

Class 7-Radioactive

Class 8-Corrosive

Class 9-Other Regulated Material

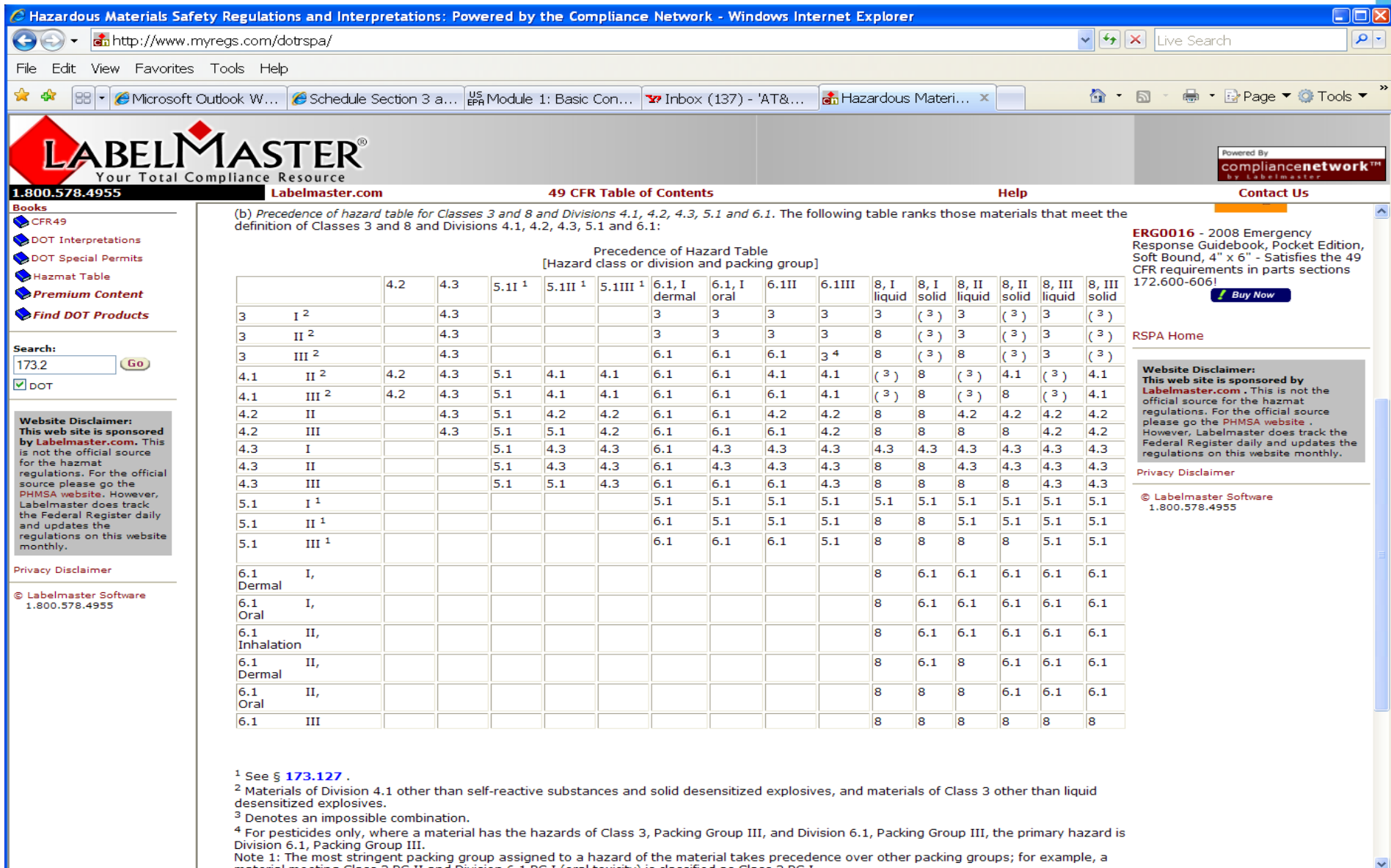
ORM D-Consumer Commodity

Most hazard classes also have packing groups, I, II or III

Mixtures

- Properties of individual chemicals may all stay in place, or may increase or decrease regulatory status. For example acetone plus hydrochloric acid is both a flammable and a corrosive. Hydrochloric acid and sodium hydroxide, both corrosives, mixed may neutralize and be non-hazardous.
- Must know Hazard Class before picking shipping name.

Precedence Chart -173.2

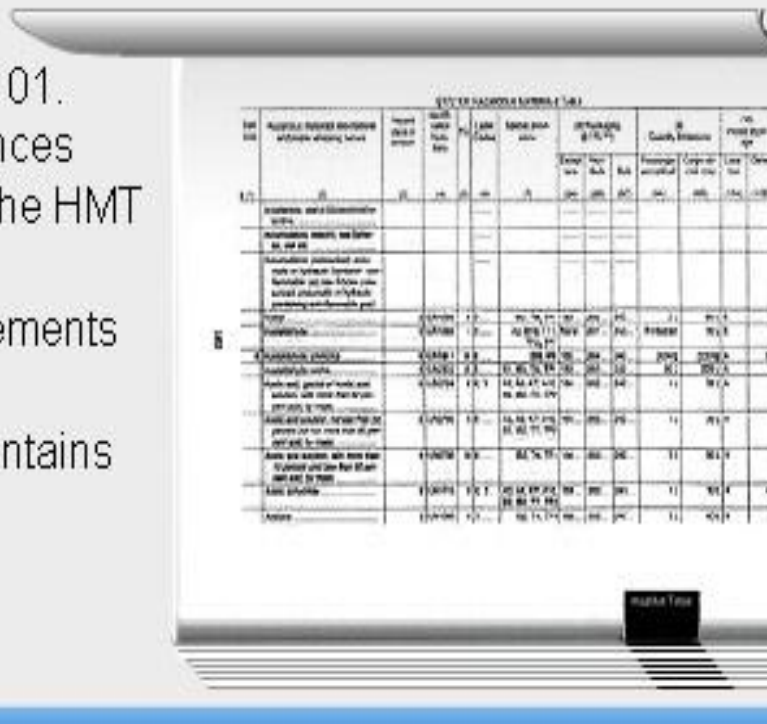


		4.2	4.3	5.1I [1]	5.1II [1]	5.1III [1]	6.1, I dermal	6.1, I oral	6.1II	6.1III	8, I liquid	8, I solid	8, II liquid	8, II solid	8, III liquid	8, III solid
3	I [2]		4.3				3	3	3	3	3	([3])	3	([3])	3	([3])
3	II [2]		4.3				3	3	3	3	8	([3])	3	([3])	3	([3])
3	III [2]		4.3				6.1	6.1	6.1	3 [4]	8	([3])	8	([3])	3	([3])
4.1	II [2]	4.2	4.3	5.1	4.1	4.1	6.1	6.1	4.1	4.1	([3])	8	([3])	4.1	([3])	4.1
4.1	III [2]	4.2	4.3	5.1	4.1	4.1	6.1	6.1	6.1	4.1	([3])	8	([3])	8	([3])	4.1
4.2	II		4.3	5.1	4.2	4.2	6.1	6.1	4.2	4.2	8	8	4.2	4.2	4.2	4.2
4.2	III		4.3	5.1	5.1	4.2	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3	I			5.1	4.3	4.3	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3	II			5.1	4.3	4.3	6.1	4.3	4.3	4.3	8	8	4.3	4.3	4.3	4.3
4.3	III			5.1	5.1	4.3	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1	I [1]						5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1	II [1]						6.1	5.1	5.1	5.1	8	8	5.1	5.1	5.1	5.1
5.1	III [1]						6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1 Dermal	I,										8	6.1	6.1	6.1	6.1	6.1
6.1 Oral	I,										8	6.1	6.1	6.1	6.1	6.1
6.1 Inhalation	II,										8	6.1	6.1	6.1	6.1	6.1
6.1 Dermal	II,										8	6.1	8	6.1	6.1	6.1
6.1 Oral	II,										8	8	8	6.1	6.1	6.1
6.1	III										8	8	8	8	8	8

[1] See § 173.127 .
[2] Materials of Division 4.1 other than self-reactive substances and solid desensitized explosives, and materials of Class 3 other than liquid desensitized explosives.
[3] Denotes an impossible combination.
[4] For pesticides only, where a material has the hazards of Class 3, Packing Group III, and Division 6.1, Packing Group III, the primary hazard is Division 6.1, Packing Group III.
Note 1: The most stringent packing group assigned to a hazard of the material takes precedence over other packing groups; for example, a

HM Table

The Hazardous Materials Table is located in 49 CFR, §172.101. It contains more than 3,000 proper shipping names of substances most commonly shipped or carried as hazardous materials. The HMT specifies or references requirements pertaining to labeling, packaging, quantity limits aboard aircraft and stowage requirements for vessels based on proper shipping name, hazard class, identification number, and packing group. The table format contains 14 columns in 10 major headings, numbered 1 thru 10.



§172.101 Hazardous Materials Table

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identifica-tion Numbers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel sto	
							Excep-tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air-craft only	Location	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	
	Acetaldehyde	3	UN1089	I	3	A3, B16,T11, TP2, TP7	None .	201 ..	243 ..	Forbidden	30 L	E	
A	Acetaldehyde ammonia	9	UN1841	III	9	IP8, IP6	155 ...	204 ..	240 ..	200 kg	200 kg	A	
	Acetaldehyde oxime	3	UN2332	III	3	B1, IB3, T4, TP1	150 ...	203 ..	242 ..	60 L	220 L	A	

§172.101(a)

Proper shipping name

- Proper shipping name
  - Must be in Roman type, not italics
  - Singular or plural, capital or lower case
  - Punctuation marks and words in italics not part of PSN but can be used.
  - Word Poison or poisonous may be interchanged with “toxic” for domestic shipments.
  - Nos= not otherwise specified
  - If “see” is referenced, both names if Roman can be used.
  - Actual % can be used instead of range listed

azardous materials descriptions and proper shipping names

azardous materials descriptions and
s. It lists the proper shipping name of
ial in the table, along with any
tive information. Proper shipping names
own in Roman type (not italics). Proper
itten in Roman type only. Names in
d to describe hazardous materials.

us

§172.101 Hazardous Materials Table

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or division
(1)	(2)	(3)
	Aerosols, flammable, n.o.s. *(engine starting fluid) (each not exceeding 1 L capacity)*.	2.1
	Aerosols, *non-flammable, (each not exceeding 1 L capacity)*.	2.2
	Aerosols, poison, *each not exceeding 1 L capacity*	2.2

es may be used in the singular or plural form, and in either capital or lower case letters.
s the plural form (Aerosols) in both upper and lower case letters, but Aerosol in the
sol in lower case letters, or AEROSOL in all upper case letters would be acceptable.

T – Column 2: Hazardous materials descriptions and proper shipping names

umn 2 is labeled Hazardous materials descriptions and per shipping names. It lists the proper shipping name of h hazardous material in the table, along with any ompanying descriptive information. Proper shipping names limited to those shown in Roman type (not italics). Proper ping names are written in Roman type only. Names in cs may not be used to describe hazardous materials.

§172.101 Hazardous Materials Table

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or division
(1)	(2)	(3)
	Carbon dioxide, refrigerated liquid	2.2
A W	Carbon dioxide, solid *or* Dry ice	9
	Carbon disulfide	3

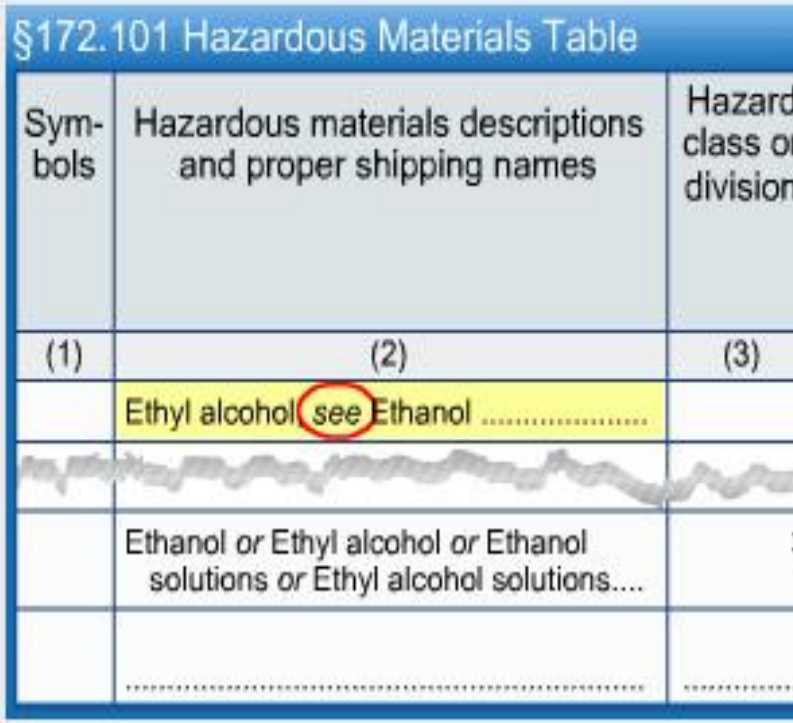
- Form and Case
- Italics
- Poison/Poisonous
- Qualifying words
- See

nctuation marks and words in italics are not part of the proper shipping name, but may be used in addition the proper shipping name. The word "or" in italics indicates that the terms in the sequence may be used as proper shipping name, as appropriate. This example includes the word "or" in italics and provides the ditional proper shipping name "Dry ice," for the entry "Carbon dioxide, solid."

§172.101(c)

T – Column 2: Hazardous materials descriptions and proper shipping names

mn 2 is labeled Hazardous materials descriptions and
er shipping names. It lists the proper shipping name of
hazardous material in the table, along with any
mpanying descriptive information. Proper shipping names
mited to those shown in Roman type (not italics). Proper
ping names are written in Roman type only. Names in
s may not be used to describe hazardous materials.



§172.101 Hazardous Materials Table

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class o division
(1)	(2)	(3)
	Ethyl alcohol *see* Ethanol	
	Ethanol *or* Ethyl alcohol *or* Ethanol solutions *or* Ethyl alcohol solutions....	
	.....	.....

- Form and Case
- Italics
- Poison/Poisonous
- Qualifying words
- See

en one entry references another entry by use of the word "see," and both names are in Roman type, then
er name may be used as the proper shipping name. In the example of Ethyl alcohol you are directed to
k at the entry for Ethanol. You should note that with the entry for Ethyl alcohol none of the other columns
tain any entries. All of the HMT data is included with the Ethanol entry, but Ethyl alcohol is still an
eptable proper shipping name.

§172.101(c)

Professor Fed's Knowledge Check 5

Instructions: Use the graphic shown here to help answer this question. Select the best answer from the four choices provided. You will have two chances to answer this question correctly.

What is the proper shipping name for Isooctane?

A. Isooctane, because proper shipping names are printed in Italic type.

B. Octanes, because proper shipping names are printed in Roman type.

C. Both, because when one entry references another by the use of the word "see" and both names are in Roman type, either entry may be used.

D. Both, because when one entry references another by the use of the word "see" and both names are in Italic type, either entry may be used.

§172.101 Hazardous Materials Table

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identifica-tion Numbers	PG	Label Codes
(1)	(2)	(3)	(4)	(5)	(6)
	Isooctane, see Octanes				.....
	Octanes	3	UN1262	II	3 .....

§172.101(c)

Proper shipping name (cont)

- Use of prefix “mono” is optional.
- Word “liquid” or “solid” may be added to the PSN
- If specifically listed, use PSN, if not then most specific nos name for haz class(es) and PG to be used.
- Word “waste” to precede if a EPA waste.
- Mixture of haz and non haz, use PSN for haz and add word “mixture or solutions”-certain exceptions.
- Use of application ok (i.e.. coating solution nos)
- Samples-assigned a tentative psn.

Proper Shipping Description

- Generic nos descriptions
  - Technical names may be required
  - Multiple hazards (173.2a chart to use).
  - Self Reactive and Organic peroxides use 173.224/225.
  - Isomers
  - Hydrates of compounds can use anhydrous name if meets requirements
  - Liquid/solid/molten may be added

Basic Description

The basic description for a hazardous material must include:

- Proper shipping name
- Hazard class or division number
- Identification number
- Packing group

Diamond Vogel Paint

Delivery Address:
McCoy & Hatfield Paints
123 Fighting Lane
Mason-Dixon, VA 23231

Billing Address:

HM	No. of Units	Shipping Description	Total Quantity
		Aluminum powder, coated	
		4.1, UN1309, PGIII	

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of

Signed

Date

SAFETY BEGINS WITH YOU!

§172.101
§172.202

Shipping Description of the Hazardous Material

The shipping description for a hazardous material must include these six items in the proper order. These items include:

- The basic description, in one of these two orders:
  - Proper shipping name, Hazard class/division number, ID number, and Packing group; or
  - ID number, Proper shipping name, Hazard class/division number, and Packing group
- Total quantity of material
- Number and type of package(s)

HM	No. of Units	Shipping Description	Total Quantity
X	20 drums	Benzene, 9, UN1114, PGII	1100 gal
	6	1 2 3 4	5

The four items of information that combine to form the basic description are found in Columns 2-5 of the HMT. The ability to provide the proper response to a hazardous materials incident depends on having the correct identification of the hazardous material involved and this means accurately describing the material on the shipping paper.

§172.202

Elements of proper shipping description

- Proper shipping name
- Hazard class-and subsidiary in () immediately following
- ID number
- PG in Roman Numerals (can use “PG”)
- Technical names in parentheses between PSN and hazard class, or following basic description. Word “contains” can be used.
- Total quantity, weight/volume and number and type of containers.

PSD, 2 Order's Allowed

UN #, PSN, Haz Class, (sub class), PG, then technical names

- Ie: UN1993, Flammable liquid, n.o.s.,3, PG II (methanol, acetone)
- RQ UN 2929 Waste Toxic liquids, flammable, organic, n.o.s. (isobutyl chloroformate, methanol) 6.1 (3), I (F003) Inhalation- Hazard, zone B

OR: PSN, Haz Class (sub class), UN #, PG, then technical names

- Ie: Flammable liquid, n.o.s.,3, UN1993, PG II (methanol, acetone)

Additional description requirements

- DOT-Special Permits
- Limited Quantities
- Hazardous substances-RQ
- Radioactive material
- Empty packagings “residue”
- Transportation by air “cargo aircraft only”
- Transportation by rail/water
- Transportation by Highway-Ammonia, LPG

Additional Requirements continued

- Technical names –If a G in Column 1, at least 2 technical names entered. For Organic Peroxides, name AND concentration required
- Marine pollutants if shipped over water.
- Poisons-If PG I or II, word Poison or Toxic must be entered unless disclosed in PSN
- Poison-Inhalation Hazard Zone
- Organic peroxides, temperature if controlled.

Shipping Papers (Bill of Lading)

- Haz must be entered first or color contrast or with HM column checked with X or RQ
- PSD must be English, printed
- PSD, no code or abbreviation
- Can contain other information-any format
- Continuation page ok, must be numbered
- Emergency response phone number
- Shippers Certification
- Shipper keep for 2 years from date of first trans, 1 year for carrier.

Manifest

- Shipper Prepares
- Original-dated by and handwritten signature of shipper/carrier/facility
- Kept for 3 years by all parties involved

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1.					
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. GENERATOR'S/OFFEROR'S CERTIFICATION: 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 and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.

I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name — Signature — Month — Day — Year

INT'L

16. International Shipments — Import to U.S. — Export from U.S. — Port of entry/exit:

Transporter signature (for exports only): — Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name — Signature — Month — Day — Year

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space — Quantity — Type — Residue — Partial Rejection — Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month — Day — Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number | 22. Page | 23. Manifest Tracking Number

GENERATOR

24. Generator's Name

25. Transporter _____ Company Name | U.S. EPA ID Number

26. Transporter _____ Company Name | U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

34. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

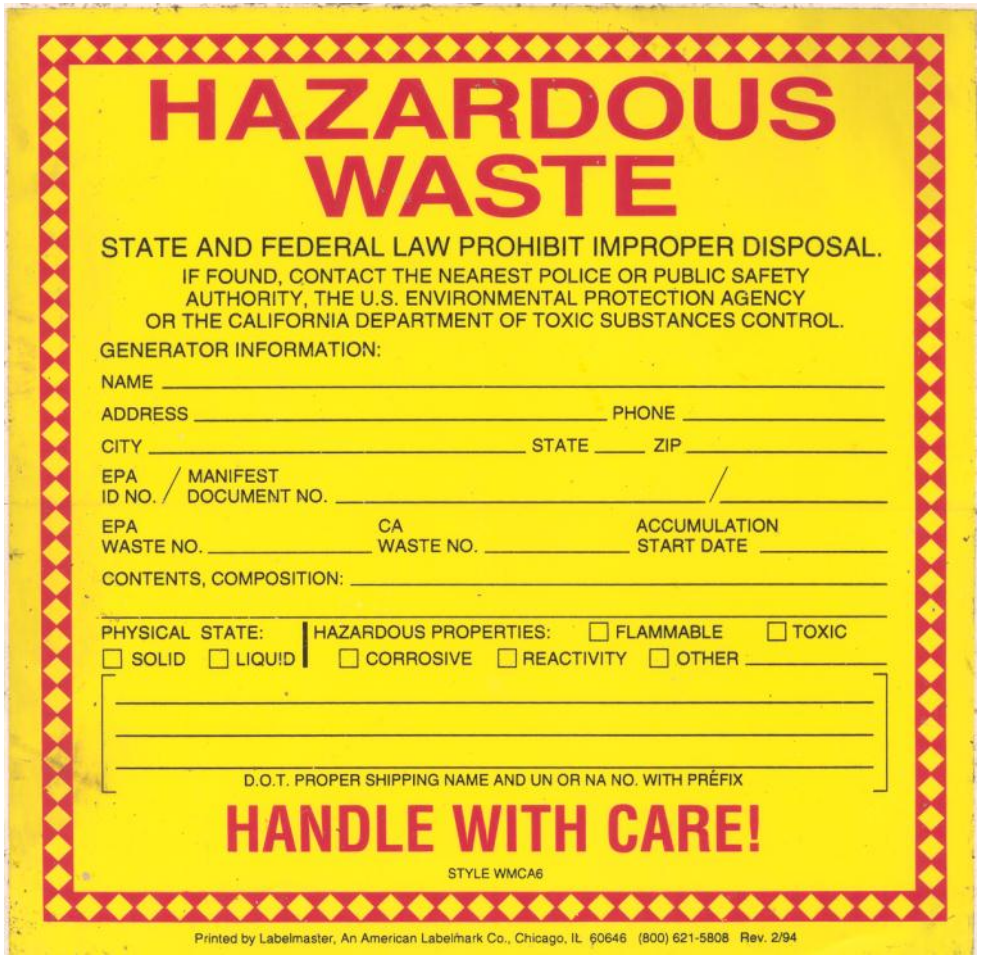
35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Sample Hazardous Waste Marking with DOT Proper Shipping Name Marking and consignor name and address



HAZARDOUS WASTE

STATE AND FEDERAL LAW PROHIBIT IMPROPER DISPOSAL.
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY, THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.

GENERATOR INFORMATION:

NAME _____

ADDRESS _____ PHONE _____

CITY _____ STATE ____ ZIP _____

EPA ID NO. / MANIFEST DOCUMENT NO. _____ / _____

EPA WASTE NO. _____ CA WASTE NO. _____ ACCUMULATION START DATE _____

CONTENTS, COMPOSITION: _____

PHYSICAL STATE: ☐ SOLID ☐ LIQUID | HAZARDOUS PROPERTIES: ☐ FLAMMABLE ☐ TOXIC ☐ CORROSIVE ☐ REACTIVITY ☐ OTHER _____

_____

_____

_____

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

STYLE WMCA6

Printed by Labelmaster, An American Labelmark Co., Chicago, IL 60646 (800) 621-5808 Rev. 2/94

Container Marking

- Most items in the shipping description
- Consignees or consignors name and address
- Durable, English, contrasting color, away from other markings that could reduce vis.

Container marking liquids

- Inner packages w liquids (lab packs)-This end up arrows on 2 opposite sides
- If PIH, must mark Inhalation hazard

- Plastic outer packaging for 6.1, permanently marked “Poison”

  .25” high within 6” of closure.

HMT – Column 6: Label Codes

Column 6, Label Codes, specifies the hazard warning labels that must be applied to each package filled with a material conforming to the associated hazard class and proper shipping name, unless excepted. The codes contained in Column 6 are defined according to the Label Substitution Table found in §172.101(g). Additional labeling requirements are found in §172.402.

Label Substitution Table

Label code	Label name
3	Flammable Liquid.
4.1	Flammable Solid.
4.2	Spontaneously Combustible.
4.3	Dangerous When Wet.
5.1	Oxidizer.
5.2	Organic Peroxide.
6.1 (inhalation hazard, Zone A or B).	Poision Inhalation Hazard
6.1 (other than inhalation haz-ard, Zone A or B)	Poison.
6.2	Infectious Substance.
7	Radioactive.
8	Corrosive.
9	Class 9.

§172.101(g)

Labeling

- Labels required on non bulk + certain others- the DOT diamond-Can use even if not required, as long as material is present
- Certain exemptions
- Cannot put other labels which could be confusing
- Subsidiary labels required
- Other labels (i.e.. cargo aircraft only)

Labeling continued

- Placement, near PSN
- Multiple labels, within 6”
- Contrast or have border
- 2 labels if >64cft
- Visible
- Durable (30 days), 3.9”

Purpose of Packaging Requirements

If you transport hazardous materials in commerce within the jurisdiction of the United States, you are regulated and must comply with the HMR.

§171.2(b)

Package

The term "package" refers to the packaging plus its contents, and is used throughout the HMR.

§171.8

UN Packaging

- Determine packaging requirements from column 8 of 172.101 table
- Must comply with: General requirements of subpart B part 173, requirements for PG in Part 178 and specifics in column 7 or 172.101
- Must allow for Headspace (approx 10%)
- Drop tests used for package testing
- Packing group I most dangerous, III least
- Class 2, 6.2 and 7 no packing group

UN Markings-178.703

- UN
- Design type (rigid/flexible)
- 1 means drum
- A-steel, g-fiberboard, h-plastic
- 1(closed head), 2 open head
- X=PG I, Y=PG II, Z=PG III
- Specific gravity for liquids or max gross mass for solids (Kg).
- Month/year of manufacture/USA
- Salvage drums PG III or higher

Standards

Every UN standard packaging must be marked with the appropriate United Nations certification mark, which contains the ID code letters and number(s), preceded by the UN symbol.

X = PGI, PGII or PGIII
Y = PGII or PGIII
Z = PG III

§178.3
§178.502
§178.703
§178.503

Placarding

- Bulk, placard with UN # or orange panel
- Table 1, any amount, even subsidiary
- Table 2
  - No placard needed if total load (table 2)<1001 lb
  - Once >1001 lb, entire load must be represented by placards
  - Dangerous ok for mixed loads up to 2205 lbs of one class in table 2.
  - If not sure, placard for every hazard class on truck

Emergency Response 172.600

- Immediately available, information and phone number
- ERG Guidebook the standard
- DOT Security plans required
- Training on ER and PPE required

Transport by Highway

- Part 177
- Training required
- No unnecessary delay
- No forbidden or improperly package
- Comply with 390-397
- Shipping paper req
- Paper must be ID’ed
- If not driving, SP must be in holder inside door (driver side) or on drivers seat.
- Cannot move truck unless properly prepared, unless to protect life/property

Loading/unloading

- Packages must be secured
- No smoking/fire loading/unloading
- Handbrake set
- No tools that may damage
- Cargo heaters restrict
- No food and toxics
- 2.3/6.1 no interconnection
- Many cargo/bulk restrictions
- Class 4/5/4.2-in closed box trucks, kept dry, various other req.
- Cylinder valves protection/flat or upright
- Batteries, prevent short circuit
- Nitric acid, not on anything else

Accidents

- Special care to guard vehicle
- Warning devices
- Repair/overpack packages
- Dispose of damaged as soon as possible
- Cannot use heat flame or spark to work on a placarded truck
- Follow your transportation contingency and security plan
- Must wear proper clothing to protect employee

Other Requirements

- FMCSR: Part 390-399 General vehicle operation and driver requirements for all commercial transportation and hazardous materials.
- Employees must be trained in Federal and State rules and in Health and Safety (OSHA). Employees in hazardous materials transportation must be trained in some basic response to avoid self injury.