

# **Transporting Hazardous Materials / Pesticides**

### **Federal Hazmat Law**



Protect against the risks to life, property, and the environment which are inherent in the transportation of hazardous materials in intrastate, interstate, and foreign commerce.

49 U.S.C. Section 5101 et seq.

### **Hazardous Materials Regulations**

USDOT's HMR Govern the

packaging and safe transportation of hazardous materials by air, highway, rail, and water (except bulk transportation onboard vessels).



### **PHMSA** Responsibilities

- Formulates, issues and revises, and enforces the HMR
- Issues special permits and approvals under the Federal Hazmat Law
- Enforces regulations emphasizing:
  - Packaging Manufacturers, Retesters and Reconditioners
  - Multimodal shippers of hazmat

### Responsibilities (cont'd)

- Modal administrations (FAA, FMCSA, and FRA) enforce the HMR respective to their mode
- U.S. Coast Guard (Department of Homeland Security) enforces the HMR respective to maritime operations









# **Common Problems Found During Inspections**

- Failure to maintain training records
- Failure to train hazmat employees
- Packages not properly marked and labeled
- Incorrect shipping papers
- · Failure to register with PHMSA
- Lack of a Security Plan

# **The Hazardous Material Table**

				4	76	<b>.101</b>					
	Hazardous	Hazard Class or	Identification		Label	Special Provisions	(8) (8)	Packagli 173.***) ACKAG	ng Ing	(9) Qu Limita	iantity tions
Symbols (1)	Materials Descriptio	Division Hazard	Numbers (4)	PG (5)	Codes (6)	(§172.102) Spæcial	Except tions 1 (8A)	7NOR*> Bulk (8B)	(8C)	Passenger aircraft/aid (9A)	Cargo air- lubant only L:_ (9B)
	ns and	Class	Identineati	T	Leabel	1.000	None	226	244	(9A) Forbidden	Forbidden
Symbol	Proper	or	on	PG	Codes	T22,1TP2,1TP2) TP44	Excep-	Non-	Bulk	Passenger	Cargo air-
5	Shipping	Divisio	Numbers				tions	bulk			craft only
	Names	<b>6.1</b> N	UN1587	(5)	( <sup>6</sup> 6 <sup>1</sup> )	IB8, IP27 IP4	(8As)	(88)	( <del>2</del> 85)	aircraft/ra	1989
<b>(41)</b>	<del>- (2)</del>	3	UN 14993	l a	3	T11, TP1, TP27,	150	201	243	ide .	30L
	Acrolein, stabilized	€3 <del>1)</del>	UNÌƠ92	1	6 <u>3</u> 1,	158 77874. 680, 1847	N <b>⊕</b> Ae 150	203 203	242 242	Fo <b>rtel</b> de n	60L 220L
		8	UN1805	Ш	8	P.7.21B.9.7163. N34/T4, TP1 T22, TP2, TP7.	154	203	241	5L	60L
						TP13, TP38,					
		J 1				TP44					
	Copper	6.1	UN1587	H	6.1	IB8, IP2,	None	204	242	25kg	<del>100k</del>
	cyanide					IP4, T3,					g
						TP33					
G	Flammable	3	UN1993	I	3	T11, TP1,	150	201	243	1L	30L
	liquid,			II	3	TP27, 1B2, T7,	150	202	242		601
	n.o.s.			11	)	TP1, TP8,	150	202	242	5L	60L
				II	3	TP28, B1, B52, IB3, T4, TP1,	150	203	242	60L	220L
				1		TP29					
	Phosphoric acid	8	UN1805	II	8	A7, IB3, N34, T4,	154	203	241	5L	60L
	solution					TP1					



### Column 5 \*

PG

 Specifies one or more packing groups assigned to a material

Packing Group I	PG I	Great Danger
Packing Group II	PG II	Medium Danger
Packing Group III	PG III	Minor Danger



Label Codes

- Specifies codes which represent hazard warning labels
  - See "Label Substitution Table" in §172.101(g)
- If more than one code is present:
  - The first indicates the primary hazard
  - Additional codes indicates subsidiary hazards

### **Column 7 Special Provisions**

	Hazardous Higgs-fala IS Descriptions	Hazard Class or	Identification		Label			Packagli 173.****) ackag		(9) Qu Limita	uantity tions
Symbols	<b>NG</b> 675	Division	Numbers	PG	Codes		Excep1	7門の泉米: Bulk	Bulk	Passenger`L	iក្សានេះខ្លាំង
(1)	Des <b>e</b> siptio	Hazard	(4)	(5)	(6)	Special	(8A)	(8B)	(8C)	(9A)	(9B)
	Acroteinnd stabilized	Cfass	Id <b>entiffe</b> ati	ı	<u>Leabel</u>	Provisions	None	226	244	Forbidden	Forbidden
Symbol	Proper	or	on	PG	Codes	(§172.102)	Excep-	Non-	Bulk	Passenger	Cargo air-
	Shipping	Divisio	Numbers				tions	bulk		aircraft/ra	
	cyllidines	6.1 n	UN1587	(5)	(61)	(7)	(8A3)	(884)	( <del>28</del> 2)	25kg	1989
<b>41</b>	Flammable Acrolein; stabilized	63 <u>1</u> )	บ <b>ทุส∌</b> บท1092	111 11	з 6 <u>31,</u> 3	1 B9, B14, B30, B42,	150 NGPe 150	201 226 203	243 <u>242</u> 242	(9A) Forbilde sol	उठा For <b>फा</b> dden 220L
	Phosphoric acid, liquid	8	UN1805	111	8	B72, B77, T22, TP2, TP7,	154	203	241	5L	60L
						TP13, TP38, TP44					100
	<del>Copper</del> cyanide	6.1	<del>UN1587</del>	H	6.1	IB8, IP2, IP4, T3,	None	<del>- 204</del>	<del>242</del>	25kg	100k g
G	Flammable	3	UN1993	I	3	TP33 T11, TP1,	150	201	243	1L	30L
	liquid, n.o.s.			II	3	TP27, 1B2, T7, TP1, TP28, P1	150	202	242	5L	60L
				II	3	TP28, B1, B52, IB3, T4,	150	203	242	60L	220L
	Phosphoric acid	8	UN1805	II	8	TP1, TP29 A7 IB N34, T4,	154	203	241	5L	60L
	solution					TP1					

§172.101 Hazardous Materials Table Excerpts



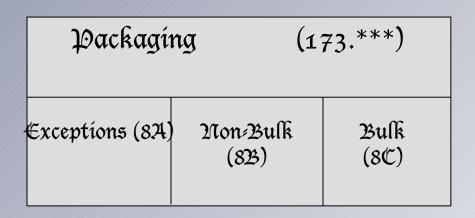
# Special Provisions

- Specifies codes for special provisions see
   § 172.102 for the meaning of the provisions
- Code descriptions
  - Numbers Only = All Applications
  - A = Air Transport Only
  - B = Bulk Transport Only
  - H = Highway Transport Only
  - N = Non-Bulk Transport Only
  - R = Rail Transport Only
  - T = IM Tanks Only
  - W = Water Transport Only



- Identifies additional provisions for the specific hazardous material
- "1" means poisonous by inhalation, Hazard Zone
- May impose limitations or additional requirements on packaging
- A7 requires steel packaging to be corrosion resistant when shipped by air
- N34 requires aluminum constructed materials not in contact with the hazardous material

### Column 8



- Identifies the applicable packaging reference
  - Column 8A Packaging Exceptions (limited quantities)
  - Column 8B Non-Bulk Packaging requirements
  - Column 8C Bulk Packaging requirements
  - \*\*\*Note\*\*\* If "None" listed, you can not use that method





- Columns specify the maximum quantities (kgs) per package
- "Forbidden"
- Quantity limitation is "net" unless otherwise specified
- If "Forbidden" on passenger-carrying aircraft, but permitted on cargo aircraft, it must be labeled with the CARGO AIRCRAFT ONLY label (§172.448)

RBIDDEN IN PASSENGER AIRCRAF

CARGO AIRCRAF ONLY

### **HAZARDOUS SUBSTANCE**

- Listed in Appendix A
- · Defined:
  - Placed in transportation
  - Meets or exceeds RQ listed per/pkg
    - (package plus contents, gross)
    - In pounds and KGs
  - Once it becomes a HAZARDOUS SUBSTANCE now considered HAZMAT
  - Name of Substance with RQ listed with PSN

### **MARINE POLLUTANT**

- Listed in Appendix B
  - Marine Pollutants
    - 10% by volume
  - Severe Marine Pollutants (PP)
    - 1% by volume
    - If no other HAZMAT traits (Class 1-8)
    - UN 3077 Environmentally hazardous substance, liquid/solid n.o.s, 9

### §173.203

# Non-Bulk Packagings for Liquid Hazardous Materials in Packing Group III

- Combination Packagings
- Single Packagings



**1A2 STEEL DRUM** 

removable head used as combination packaging



FIBERBOARD BOX

used as combination packaging showing inner packagings



**1A1 STEEL DRUM** 

non-removable head used as single packaging

### **Markings that Communicate the Hazard**

- 49 CFR Part 172 Subpart D Applicability
- Each person offering a hazardous material for transportation
- Each carrier when assigned the function by Subpart D
- General Markings that Identify the Hazardous Material Shipment
- Proper shipping name
- UN identification number
- Consignee or Consignor

# **General Hazard Communication Markings**



Proper Shipping Name Identification Number Orientation Arrows

**Consignor/Consignee** 

# Additional Hazard Communication Markings

- Technical Names -§172.301(b)
- Inhalation Hazard §172.313(a)
- Marine Pollutant §172.322
- RQ (Hazardous Substance) §173.324



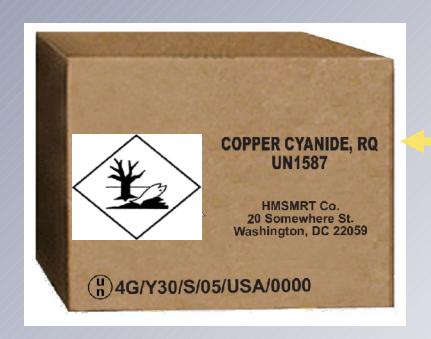
### **Inhalation Hazard**



**Optional with label** 



# **Hazardous Substance and Marine Pollutants**



### **Hazard Labels**

- 49 CFR Part 172 Subpart E Applicability
- Each person offering a hazardous

material for transportation

- Exceptions §172.400a
- Hazard Labels
- Primary Hazard Class
- Subsidiary Risk
- Other Labels
- Cargo Aircraft Only



### **Selecting Hazard Labels**

	Hazardous HMaterials Beschiptions	Hazard				_Special	(8) (8)	Packagi 173.*** ackag	ng ina	(9) Qu Limita	uantity ations
Symbols	Names Descriptio	Class or Division	Identification Numbers	PG		Provisions (§172.102)	tions 1	Bulk*	Bulk	Passenger aircraft/guid	Cargo air-
(1)		Haceard	(4)	(5)		Special	(8A) None	(8B) 226	(8C) 244	(9A) Forbidden	(9B)
1	Acroleinad stabilizadd	Cfass	Id <b>entma</b> ati		Label	1DB9, R17, B30, B42, B2, TB2, TB2,					
Symbol		or	on	PG	Codes	TP44	Excep-		Buik	Passenger	
5	Shipping Copper cyllagaes	Divisio 6.1	Numbers UN1587		(6)	IB8, IP2, IP4	tions None	bulk   294	/242	<u>'aircraft/ra</u>   25kg	craft only
		n		(5)	(6)	(7)	(8A3)	(88)	(383)		1 <del>98</del> 9 1
<del>(1)</del>	Flaminable liquid F.o.s. ACTOICIN,	3 601	∪ <b>м(14</b> )эз UN1092		6.1,	T11, TP1, TP27, 1B3, T7, TP1, 1, PB, 7, F28, 48,1,	150 Nt <del>5</del> 9e	201 201	243 242	(9A) Forb <del>il</del> de	ਤਰL For <del>ੈ</del> ਸੀਰੀden
	stabilized	€3 <del>1)</del>	0111032	T I	0.1,	B52, B3, T4, B50, B42,	150	226 203	242 242	n 60L	220L
	Phosphoric	8	UN1805			P3721BB 7773, N347 T4: TP1	154	203	241	5L	60L
	acid, İiquid					<del>'N/34/ 14/ 1</del> 121   T22, TP2, TP7.					
						TP13, TP38,					
						TP44					
<u> </u>	Copper	6.1	UN1587	<del>. II</del>	6.1	IB8, IP2,	None	204	242	25kg	100k
	cyanide	0.2	0.12007		0.1	IP4, T3,					g
	0,4					TP33					
G	Flammable	3	UN1993	Ιτ	3	T11. TP1.	150	201	243	11	30L
	liquid,		0111333			TP27, 1B2, T7,		201	213		302
	n.o.s.			II	3	TP1, TP8,	150	202	242	5L	60L
	1110101					TP28, B1, B52,					
				II	3	IB3, T4, TP1,	150	203	242	60L	220L
1				L		TP29					
	Phosphoric	8	UN1805	II	8	A7, IB3,	154	203	241	5L	60L
	acid solution			L	ļ	N34, T4,					
						TP1					
<b>L</b>											

§172.101 Hazardous Materials Table Excerpts

### **Labeling for Subsidiary Risks \***



#### **Acrolein Stabilized**





Note: ALL primary AND subsidiary labels MUST have the hazard class or division number displayed on a square on point design label

§172.402

### **Label Specifications**

- Hazard labels
- Design
- Size
- Color
- Cargo Aircraft Only
- Rectangle
- Danger

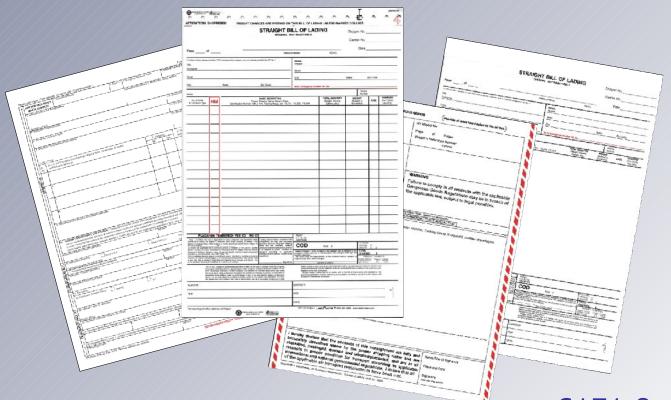




4.3"

### **Subpart C – Shipping Papers**

A shipping order, bill of lading, manifest, or other shipping document serving a similar purpose and containing the information required by HMR Part 172, Subpart C



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§171.8; §172.200

### **Required Information**

ī		Hazardous							<u> </u>	<u> </u>		
	Symbol s	Hazardous Materials Descriptio ns and Proper Shipping Names	Hazard Class or Divisio n	Identificati on Numbers	PG (5)	Label Codes (6)	Special Provisions (§172.102)	None Exceptions None (8A)	226 Non- bulk 204 (8B)	Bulk (8C) 244 Bulk (8C)	Qua Qua Fooldmit Passenger aircraft/ra il	ntity Itions des Cargo air-
		Acrolein, stabilized	<b>63</b> <sup>1</sup>	UN1092	I	6.1,	1, B9, B14, B30, B42, B72, B77, T22, TP2, TP7, TP13, TP38,	150 Nogge 154	201 202 203 203	243 242 242 242 241	<del>(9A)</del> Forbidde n	Forbidder
		Copper cyanide	6.1	UN1587	II	6.1	IB8, IP2, IP4, T3, TP33	None	<del>204</del>	242	25kg	100k g
		Flammable liquid, n.o.s.	3	UN1993	I II II	3 3	T11, TP1, TP27, 1B2, T7, TP1, TP8, TP28, B1, B52, IB3, T4, TP1,	150 150 150	201 202 203	243 242 242	5L	30L 60L 220L
		Phosphoric acid solution	8	UN1805	II I	8	TP29 A7, IB3, N34, T4, TP1	154	203	241	5L	60L

§172.101 Hazardous Materials Table Excerpts

### **Hazardous Materials Basic Description**

Identification Number

Proper Shipping Name

Hazard Class

Packing Group

нм	BASIC DESCRIPTION  Identification Number [UN or NA], Proper Shipping Name, Hazard Class, Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)
۷ı	11587, Copper Cyanide, 6.1, PGII	4 gal
		Identification Number (UN or NA), Proper Shipping Name, Hazard Class,

I S H P

### **Hazardous Materials Basic Description**

Proper Shipping Name Hazard Class Identification Number Packing Group

нм	BASIC DESCRIPTION Identification Number (UN or NA), Proper Shipping Name, Hazard Class, Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)
Æα	pper Cyanide, 6.1,UN1587 PGII	4 gal
		Identification Number (UN or NA), Proper Shipping Name, Hazard Class,

SHIP

### **Preparation of Shipping Papers\***

- Display of Hazardous Materials Description on Shipping Papers
- Listed first or Contrasting color
- Identified with "X" in HM Column
- Legible
- English
- Authorized abbreviations
- Additional information
- Continuation pages
- Emergency response telephone number



# **Shipping Papers**

					Carrier No		
age of	10 <u>11 11 11 11 11 11 11 11 11 11 11 11 11</u>				Dat	e	
- J		(Plame o	of courrier)	(SCACI			
	OSS' mais appear belose remignos's name or as elberoise pr	revaled in New 430, San. 1.	FROM:				
O: onsignee			Shipper				
			Street		10.000	Jan Carle San Land	
treat			City		State	Zip Code	
inty	State	Zip Code	24 hr. Emergency C	Contact Tel. No.			
oute.					Vert	icte	
No. of Units		BASIC DESCRIPTON Shipping Name, Hazard Class,		TOTAL QUANTITY (Weight, Volume,	WEIGHT (Subject to	PATE	CHARGES (For Carrier
& Container Type	Identification Number (UN or	NA), Packing Group, per 172.101.	172.202, 172.203	Giallons, etc.)	Correction)		Use Only)
Drums UN	I1578, Copper Cya	anide, 6.1, PG	II	4			
Drums UN	11578, Copper Cya	anide, 6.1, PG	II	4 gal			
PI ACARDS	TENDERED: YES	1					
PI ACARDS	TENDERED: YES		REMET C.O.D. TO:	gal	SER	o Fee	
PI ACARDS	TENDERED: YES		COD	gal	PARA	SECT S	
PI ACARDS	TENDERED: YES	1	COD	gal	PARA	AL ROES: S	
PI ACARDS	TENDERED: YES	I favority disclass that the comments of this observable of process that the comments of the described effects by the person of highlight and the comment of	COD TO COLD TO COD TO C	gal  Armi: 8 For Construction, of the Construction to be of the Construction of the Co	A payment of CHA CHA CHA	AL ROES: S	WESS
PLACARDS 1 Filder — (1) othere the role on they or proposed for decided value of the origination of the orig	FENDERED: YES NO  more and our values of the property of the testing of the testi	In providing districts that the comments of th	COD TO ACORDO	gal	of any case property, in	AL SOLES S PROFIT CHAI	the one
PLACARDS 1  Photo — (1) Where the rate is sign greated or decarded usuals of the original property of the prop	TENDERED: YES NO   mortised our volter, objections are one after the order of the proposety deliberation of the proposety deliberation of the proposety deliberation of the proposety of the prop	In providing districts that the comments of th	COD TO ACORDO	gal  Ami: 5  To conseque, a real entirement is to be of consequence, a real entirement is to be of the charge of the delignation. This consequence is the delignation of the charge of of	of any case property, in	AL SOLES S PROFIT CHAI	the one
PLACARDS 1  Filidar — (1) Wilsom Ten cale on time to grant the control of the con	FENDERED: YES NO  more and our values of the property of the testing of the testi	In providing districts that the comments of th	EFFRET FO. ACCIDENCES  CACCIDENCES  CACCIDEN	gal  Ami: 5  To conseque, a real entirement is to be of consequence, a real entirement is to be of the charge of the delignation. This consequence is the delignation of the charge of of	of any case property, in	AL SOLES S PROFIT CHAI	the one
PLACARDS 1  Filiatr - (1) bitteres the cale or dispose ingread or described value of the origination of the cale o	FENDERED: YES NO  more and our values of the property of the testing of the testi	In providing districts that the comments of th	GOD, TO ACCIDENT AND ACCIDENT ACCIDENT AND ACCIDENT ACCIDENT AND ACCIDENT ACCIDENT AND ACCIDENT ACCIDENT ACCIDENT ACCIDENT ACCIDENT ACCIDENT ACCIDEN	gal  Ami: 5  To conseque, a real entirement is to be of consequence, a real entirement is to be of the charge of the delignation. This consequence is the delignation of the charge of of	of any case property, in	AL SOLES S PROFIT CHAI	the one

### **Additional Descriptions**

- Special Permits (Exemptions)
  - DOT-SP
  - DOT-E (if special permit or exemption was issued before Oct. 1, 2007)
- Limited Quantity (Ltd Qty)
- Hazardous Substance RQ
- Radioactive Material
- Empty Packages
- Transportation by modes
- Marine Pollutants
- Vessel Mode (non-bulk package)
- Poison or toxic inhalation hazard

# Why Placard?

Hazard Communication

- Response Mitigation
- Regulatory Requirement



### Placarding - Part 172, Subpart F

Each person who offers or transports hazardous materials must comply with the placarding requirements.





#### Placarding requirements do not apply to:

- Small quantities of certain hazard classes
- Limited quantities
- Infectious substances
- Other regulated material (ORM-D)
- Combustible liquids in non-bulk packagings
- Materials prepared in accordance with §173.13

### **General Placarding Requirements**

### Placard a container or vehicle:

- on each side and each end
- for any quantity of hazardous material

### Some exceptions exist based on:

the hazard and quantity present





Less than 454 kg (1,001 lbs.) aggregate gross weight may be placarded, but is not required

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard de- sign section reference (§)
1.4	EXPLOSIVES 1.4	172.523
1.5	EXPLOSIVES 1.5	172.524
2.1	FLAMMABLE GAS	172.525 172.532
2.2	NON-FLAMMABLE GAS	172.528
3	FLAMMABLE	172.542
Combustible liquid	COMBUSTIBLE	172.544
1.1	FLAMMABLE SOLID	172.546
1.2	SPONTANEOUSLY COMBUSTIBLE	172.547
5.1	CXIDIZER	172.550
5.2 (Other than organic peroxide, Type B, liquid or solid, temperature controlled).	ORGANIC PEROXIDE	172.552
5.1 (other than material poisonous by inhalation)	PCISON	172.554
5.2	(None)	
	CORROSIVE	172.558
DRM-D	Class 9 (see § 172.504(f)(9))	172.560

## **Exceptions: Class 9**

Not required to be placarded when shipped domestically

### Note:

Bulk shipments must still be marked with the UN number.



# **Exceptions Division 6.1**

- Domestic shipments:
  - Text may be modified for PGIII toxic material
  - A poison placard is not required on a transport vehicle or freight container required to display a Poison Inhalation Hazard or Poison Gas placard









### **Materials of Trades**

- Where you are self employed or work for a large company you may carrying a Hazardous Material as part of your job.
- Certain hazardous materials transported in small quantities as part of a business are subject to less regulations, because of the limited hazard they pose. These materials are know as Materials of Trade.

# What are Materials of Trade and What Regulations Apply?

- To protect the health and safety of the motor vehicle operator passengers, such as insect repellant or a fire extinguisher
- To support the operation or maintenance or a motor vehicle (including its auxiliary equipment), such as a spare battery or gasoline
- To directly support a principal business of a private motor carrier that is other than transportation by motor vehicle example, landscaping, pest control, painting, plumbing or welding services.

### MOT's

49 CFR section 173.6 include

- General Knowledge of MOTs regulations
- Quantity limitations
- Packaging requirements
- Marking and Labeling requirements

## **MOTs Regulations do not require**

- Shipping Papers
- Emergency response information
- · Placarding
- Formal Training or retention of training records

## **What Quantity Limits Apply for MOTs?**

- No more than a combined gross weight of 440 lbs (200 kg) can be transported on any one vehicle. Size limits for individual packages are:
- Packaging Group I, the maximum amount in one package is 1 lb (0.5 kg)
- Packaging Group II or III, other than Division 4.3, or is a consumer commodity (ORM-D) each package 66lbs (30kg) for solids or 8 gals (30L) for liquids.
- Each Cylinder containing a gas (Division 2.1 or 2.2) may not weigh more than 220 lbs (100 kg)
- A diluted mixture of a Class 9 material (not exceeding 2%) may be transported in a tank up to 400 gals (1500 L)



# Hazardous Materials INFO-LINE

1-800-HMR49-22

(1-800-467-4922)

Hours of Operation: 9 am - 5 pm ET



- Obtain answers to HMR questions
- Request copies of Federal Register, exemptions or training materials
- Report HMR violations
- Fax on Demand

E-mail: infocntr@dot.gov

### **Where to Find More Information**





## **Southwest Region Multi Modal**

- Aug 9th and 10th
- Crowne Plaza Hotel in Addison, TX



# Thank You

