# HAZARDOUS MATERIALS & HAZARDOUS WASTE TRANSPORTATION REGULATIONS THE BASICS

# **OVERVIEW**

Why do we have Regulations?

Hazardous Materials Inspections

HIGHWAY

# Hazardous Materials Transportation Regulations

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Safety Considerations

Questions & Answers

## A LITTLE ABOUT ME.....

- Officer with the California Highway Patrol for over 21 years. For the last 16 years, I've committed myself to the education, enforcement, and response to hazardous materials and hazardous waste incidents with an emphasis on hazardous materials inspections, hazardous materials response tactics, and environmental crimes.
- I have overseen California's Office of Emergency Service's (CalOES) Region II's Local Emergency Planning Committee (LEPC) as it's Chairperson, and still sit on the LEPC Board as the Law Enforcement Leader.
- Over the years, I have instructed and facilitated the Hazardous Materials Investigations course (sponsored by the California Hazardous Materials Investigators Association - CHMIA) and facilitated the Adv Environmental Crimes Training Program (sponsored by the US Federal Law Enforcement Training Center (FLETC) and CHMIA).

## A LITTLE ABOUT ME.....

- I am certified by CalOES and the California Specialized Training Institute (CSTI) as a Hazardous Materials Outreach Instructor.
- As an Outreach Instructor and a certified Hazardous Materials Specialist, I instruct and course manage numerous courses throughout the state to the CHP, local LE & FD departments, State departments, and dozens of Hazardous Materials Response Teams:
  - 1. First Responder Awareness
  - 2. First Responder Operations
  - 3. Hazardous Materials Incident Commander
  - 4. Hazardous Materials Technician Series, B-D weeks (Applied Chemistry, Incident Considerations & Offensive Control)
  - 5. Hazardous Materials Specialist Series, F-G weeks (Emergency Response Tactics)
  - 6. Hazardous Materials / Waste Transportation Regulations
  - 7. Radiological & Nuclear Awareness
  - 8. WMD for the Hazardous Materials Technician
  - 9. Chemical Suicides (Detergent Suicides)
  - 10. Clandestine Labs
  - **11. Evidence Collection**
  - 12. Field Sampling



# A LITTLE ABOUT ME.....

- General Hazardous Materials Certified (US DOT)
- Hazardous Materials Cargo Tank Inspector Certified (US DOT)
- Radiological and Nuclear Awareness Certified (DOE / DHS)
- Radiological and Nuclear Operations Certified (DOE / DHS)
- HM Container Inspector Certified (USCG / DHS)
- Nuclear Radiation Response Certified (US EPA)
- Hazardous Materials Other Bulk Packaging Certified (US DOT)
- Transuranic Nuclear Waste Certified (US DOT/ DOE)
- Hazardous Materials Investigations (CHMIA / CalOES)
- Advanced Environmental Crimes Certified (US EPA)
- Environmental Enforcement & Field Sampling (DTSC)
- Radiological Materials Certified (US DOT)
- Hazardous Materials Technician (CalOES / CSTI)
- Hazardous Materials Specialist (CalOES / CSTI)
- Hazardous Materials Specialist WMD (CalOES / CSTI)



# HAZARDOUS MATERIALS REGULATIONS

# THE BASICS





Why do we have Hazardous Materials Transportation Regulations?



MOST hazardous materials, at some point, will be transported on HIGHWAY. It is imperative that Hazmat Transportation Regulations are adhered to for the safety of the truck driver, the motoring public, FIRST RESPONDERS and our environment!!



Hazardous Materials & Hazardous Waste Laws AND Regulations come from both FEDERAL AND STATE Statutes.



# FEDERAL

Hazardous Materials Transportation Act

- **OUS DEPARTMENT OF TRANSPORTATION** 
  - Title 49 Code of Federal Regulations

#### **Resource Conservation and Recovery Act**

- **OUS ENVIRONMENTAL PROTECTION AGENCY** 
  - Title 40 Code of Federal Regulations



# STATE

California Vehicle Code

#### • CALIFORNIA HIGHWAY PATROL

Title 13 California Code of Regulations

#### California Health and Safety Code

- **DEPARTMENT OF TOXIC SUBSTANCES CONTROL** 
  - Title 22 California Code of Regulations



# STATE

California Vehicle Code

#### • CALIFORNIA HIGHWAY PATROL

Title 13 California Code of Regulations

#### California Health and Safety Code

**• DEPARTMENT OF TOXIC SUBSTANCES CONTROL** 

#### & CALIFORNIA HIGHWAY PATROL

Title 22 California Code of Regulations



## KEEP IN MIND.....

In addition to the numerous responsibilities tasked to the Department of the California Highway Patrol (CHP), our primary mission is the management and regulation of traffic to achieve safe, lawful, and efficient use of the highway transportation system.

The CHP has <u>statewide authority</u> and is responsible for enforcing state traffic laws, as well as numerous other rules, regulations and provisions relating to the transportation of hazardous materials and hazardous wastes pursuant to the California Vehicle Code, California Health and Safety Code, California Code of Regulations Title 13 and Title 22, and Code of Federal Regulations Title 40 and Title 49.



### KEEP IN MIND.....

It is the intent of the California Legislature for the Department of the California Highway Patrol to provide additional protection to the public and reduce the risk of possible hazards in the highway transportation of hazardous materials.

In addition, it is further the intent of the Legislature for the Department of the California Highway Patrol to place a high priority to license and inspect hazardous materials shipments to ensure compliance with the provisions of the California Vehicle Code and Regulations adopted pursuant to the CVC, and in some incidences, establishing special safeguards for particular hazardous materials shipments.



# SOMETIMES THESE LAWS AND REGULATIONS SEEM FRAGMENTED...

#### .... but they really do fit together!



# HAZARDOUS MATERIALS INSPECTIONS



## HAZARDOUS MATERIALS INSPECTIONS



#### 8 CHP Divisions

#### **16 Inspection Facilities**

#### **Numerous Platform Scales**





# HAZARDOUS MATERIALS INSPECTIONS

#### Phase 1 – Driver Contact:

- o Driver License
- Vehicle/s Registration
- CA / DOT Identification Numbers
- California Hazardous Materials Transportation License
- Federal DOT Hazardous Materials License
- DTSC Hazardous Waste Transporter Registration
- Emergency Response Information
- o Driver Training
- Hazardous Materials Shipping Papers / Uniform Hazardous Waste Manifests



# HAZARDOUS MATERIALS INSPECTIONS

#### Phase 2 – Hands On:

- Hazardous Materials Shipping
   Papers / Uniform Hazardous Waste
   Manifests
- HM Packaging
- HM Segregation
- HM Markings
- HM Labels
- HM Placards
- Two-Way Communications
- Safety Equipment
- Locking Device
- HM Securement
- HM Package Integrity / Leaking Packages

DRIVER/VEHICLE EXAMINATION REPORT													
CHP 407F/343A-Aspen California Highway Patrol 601 North 7th Street Sacramento, CA 95811 Phone: (916)843-4250 Fax: (916)843-3898						Report Number: CA3LN6111402 Inspection Date: 2013-08-31 Start Time: 10:45 End Time: 11:45 Insp. Level: III - Driver//Credential Inspection HM Inspection Type: N							
				Drive Licen Date (	r: se #[ of Birth	: 1958-09	<b>State:</b> C	Ą					
USDOT#: Phone#: (937)382-1494 MC/MX#: 099074 Fax#:				CoDriver: License#: State:									
VERMORE		MileF	Post:	2410		Sh	ipper:						
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FIFICATION													
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177.834A	С	4	1	ι	J	0	Package not secure in vehicle - Four 55 gal. plastic drums strapped to side of van but not secured on pallet, drums shifted,1 drum tipping off pallet O/S						
HazMate: 8 Placard: Yes HazMate: 3 Placard: Yes					Cargo Tank: 0 Cargo Tank: 0								
	HP 407F/343 alifornia Higl D1 North 7th acramento. C hone: (916)8/ WERMORE ALE TIFICATION INERMORE ALE TIFICATION INERMORE ALE TIFICATION INERMORE ALE TIFICATION INERMORE ALE TIFICATION	HP 407F/343A-Aspe           alifornia Highway P           D1 North 7th Street           acramento, CA 958           hone: (916)843-4250           INC           INC	HP 407F/343A-Aspen alifornia Highway Patrol D1 North 7th Street acramento, CA 95811 hone: (916)843-4250 Fax: (9 INC Phone#: (937): Phone#: (937): Phone#: (937): Phone#: (937): Fax#: VERMORE NIIEF TIFICATION INC Desti Desti Desti ITIFICATION INC VERMORE VERMORE VERMORE NIIEF Origi Desti ITIFICATION INC VERMORE NIIEF Configi Desti Desti ITIFICATION INC VERMORE NIIEF Configi Desti Desti ITIFICATION INC VERMORE NIIEF Configi Desti ITIFICATION INC VERMORE NIIEF Configi Desti ITIFICATION INC VERMORE NIIEF Configi Desti ITIFICATION INC VERMORE NIIEF Configi Desti ITIFICATION INC VERMORE NIIEF Configi Desti ITIGATION INC VERMORE NIIEF Configi Desti ITIGATION INC VERMORE NIIEF Configi Desti ITIGATION INC VERMORE NIIEF Configi Desti INC VERMORE NIIEF Configi Desti INC VERMORE NIIEF Configi Desti INC VERMORE NIIEF Configi Desti INC VERMORE NIIEF Configi Desti INC VERMORE NIIEF Configi Desti INC VERMORE NIIEF Configi Anton C	HP 407F/343A-Aspen           alifornia Highway Patrol           D1 North 7th Street           acramento, CA 95811           hone: (916)843-4250 Fax: (916)843-3898           INC           INC           Phone#: (937)382-1494           Fax#:           VERMORE           MilePost:           ALE           Origin: FRESNO           Destination: OAKI           TIFICATION           ike         Year           T1         2008           NE         1664863           NX 2000         ME           NONE         1X VAN           VAN 2007         ME           T2504B         C           C         4           T2504B         C           C         4           T172.504B         C           C         4           T172.834A         C           Placard: Yes           Placard: Yes	HP 407F/343A-Aspen alifornia Highway Patrol D1 North 7th Street acramento, CA 95811 hone: (916)843-4250 Fax: (916)843-3898         INC       Driver Licen Date (937)382-1494         Phone#: (937)382-1494       CoDri Licen Date (937)382-1494         VERMORE       MilePost: Licen Date (937)382-1494         VERMORE       MilePost: Licen Date (937)382-1494         VERMORE       MilePost: Licen Date (1000)         Ike       Year         State       License # License # Date (103399)         IFICATION       Into 3399         Ike       Year         VERMORE       NONE         It       2006         ME       1664863         NN       2007         ME       1560119         IX VAN         VK       2000         MA       2007         ME       1560119         I72.504B       C         C       4         177.834A       C         Placard: Yes         Placard: Yes	HP 407F/343A-Aspen     Repoind if ornia Highway Patrol     Inspeind if of the set if of the s	HP 407F/343A-Aspen     Report Number Inspection Da Inspection Da Di North 7th Street     Start Time: 10 Di North 7th Street       D1 North 7th Street     Start Time: 10 Di North 7th Street     Start Time: 10 Di North 7th Street       Inspection Da Ditage     INSPEction Da Ditage     HM Inspection Da Ditage       Inspection Ditage     INSPEction Ditage     HM Inspection       Inspection Ditage     INSPEction Ditage     Ditage       Inspection Ditage     Phone#: (937)382-1494     CoDriver: License #: Data of Birth: 1958-05       Phone#: (937)382-1494     CoDriver: License#: Data of Birth: 1958-05       VERMORE     MilePost:     State License #: Data of Birth: 1958-05       VERMORE     MilePost:     State State License #: Data of Birth: 1958-05       Inspection OAKLAND     Ca     Ca       VERMORE     MilePost:     State	HP 407F/343A-Aspen       Report Number: CA3LN611144         alifornia Highway Patrol       Inspection Date: 2013-08-31         D1 North 7th Street       Start Time: 10:45 End Time: 1         acramento, CA 95811       Insp. 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This is not a citation. Please read the instructions on the reverse side of this fo Note: \* Owner Responsibility





# HAZARDOUS MATERIALS TRANSPORTATION REGULATIONS

# THE BASICS



www.mancomm.com

## APPLICABILITY OF REGULATIONS



#### **CODE OF FEDERAL REGULATIONS - TITLE 49 - TRANSPORTATION**

HAZARDOUS MATERIALS COMPLIANCE PRODUCTS DOT COMPLIANCE PRODUCTS FMCSA COMPLIANCE PRODUCTS OSHA COMPLIANCE PRODUCTS DRIVER TRAINING & COMPLIANCE REGULATIONS

# HAZARDOUS MATERIALS REGULATIONS

#### APPLICABILITY OF REGULATIONS

#### • §171.1 CFR 49

(c) Transportation Functions. Requirements in the HMR (Hazardous) Materials Regulations) apply to transportation of a hazardous material in commerce and to each person who transports a hazardous material in commerce. Transportation of a hazardous material in commerce begins when a carrier takes physical possession of the hazardous material for the purpose of transporting it and continues until the package containing the hazardous material is delivered to the destination indicated on a shipping document, package marking, or For a private motor carrier, transportation of a other medium. hazardous material in commerce begins when a motor vehicle driver takes possession of a hazardous material for the purpose of transporting it and continues until the driver relinquishes possession of the package containing the hazardous material at its destination and is no longer responsible for performing functions subject to the HMR with respect to that particular package.



# HAZARDOUS MATERIALS REGULATIONS

#### APPLICABILITY OF REGULATIONS

#### o §171.1 CFR 49

(f) No person may transport a hazardous material in <u>commerce</u> unless the hazardous material is transported in accordance with applicable requirements of this subchapter or an exemption, approval, or registration issued under this subchapter.





# PHASE 1 DRIVER CONTACT



# DRIVER LICENSE



# DRIVER LICENSE





#### Common Violations:

- CDL Not in possession
- Inappropriate CDL Class
- No Hazardous Materials
  - Endorsement
- No Tank Endorsement



12951VC, 15275VC

# VEHICLE REGISTRATION & CA / DOT NUMBERS

SELF EXPLANATORY



## CALIFORNIA HAZARDOUS MATERIALS TRANSPORTATION LICENSE



# CALIFORNIA HAZARDOUS MATERIALS TRANSPORTATION LICENSE (CHMTL)

#### **Common Violations:**

 Current copy of CHMTL not in possession

• CHMTL not on file

• CHMTL on file, but Expired

CALIFOUNIA	STATE OF CALIFORNIA DEPARTMENT OF CALIFORNIA HIGHWAY PATROL	CONTROL NUMBER 215302	UCENSE NUMBER 141001	155UE DATE 6/30/2015	TANATE DOWNTONDATE 7/31/2016			
HAZARDOUS MATERIALS		CAP CARREN NUMBER	LOCATION	Duplicate	Replacement			
$\mathbf{\nabla}$	CHP 360H (REV. 1/00) OPI 062	PROPERTY OF THE CALIFORNIA HIGHWAY PATROL (CHP) The original valif learness must be kept at the learness the place of business as indicated on the learnes and a legible copy must be carried in any vehicle or combination transporting hazardous materials and must be presented to any CMP officer upon requirit. This learne is MONTRANSFERABLE and must be						
LICENSEE N/	AME AND PHYSICAL ADDRESS (only if different from below)							
SUMMIT ENVIRONMENTAL SERVICES INC 8041 DORY DRIVE HUNTINGTON BEACH CA 92646		turnendent to the CHP spon dominal or as required by law. A migory charge in overright or control or control of the lower and evelops. This lower any be nerved by tournaling an application and appropriate fee to the CHP. Persons whose lowers. THERE IS NO GRACE PERSON. For lower will immediately cause the activity requiring a strongen. THERE IS NO GRACE PERSON. For licensing information contract CHP, Commercial Vahicle Section at (916) 443-3400. This carrier is on the special routing/safe stopping place mailing lists as indicated below:						
	LICENSEE NAME AND MAILING ADDRESS	(HMD) Explosives subject to Division 14, California Vehicle Code (CVC).						
S 7	SUMMIT ENVIRONMENTAL SERVICES INC 7071 WARNER AVE F353 HUNTINGTON BEACH CA 92647		(HMPIH) Polson Inhalation Hazard materials in bulk packagings subject to Division 14.3, CVC.     (HRCQ) Highway Route Controlled Quarity radioactive materials subject to Division 14.5, CVC.					
	ATTENTION: TONY M ORLANDO	Any presen who dumps, splits, or causes the release of harandous materials or harandous wants upon any highway shall immediately ootly the CHP or the agency baving jurisdiction for that highway. The minimum fine for failure to make the appropriate notification is \$ 2,000.00, (CNC Section 23112:5)						



32000.5(a)VC

## DTSC HAZARDOUS WASTE TRANSPORTER REGISTRATION



# DTSC HAZARDOUS WASTE TRANSPORTER REGISTRATION

 Transporting any Hazardous Waste

in vehicle

demand

Must carry current copy



-65

Department of Toxic Substances Control

Deborah0.Raphel Director 8800 CalCenter Drive Sacramento, California 95826-3200



\*\*\*HAZARDOUS WASTE TRANSPORTER REGISTRATION\*\*\* HAZARDOUS WASTE OF CONCERN TRANSPORTER WITH CONSOLIDATED TRANSPORTER NOTIFICATION

NAME AND ADDRESS OF REGISTERED TRANSPORTER:

140 WEST MONTE AVENUE BLOOMINTON, CA 92316

EXPIRATION DATE: DECEMBER 31, 2014

THIS IS TO CERTEX THAT THE HIMM NAMED ABOVE IS DULY REGISTERED TO TRANSPORT HAZARDOUS WASTE IN THE STATE OF CALIFORNIA IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 6.5, DIVISION 20 OF THE HEALTH AND SAFETY CODE AND TITLE 22 OF THE CALIFORNIA CODE OF REGULATIONS, DIVISION 4.5.

THIS REGISTRATION CERTIFICATE MUST BE CARRIED WITH EACH SHIPMENT OF HAZARDOUS WASTE.

FOR REGISTRATION INFORMATION, PLEASE CALL (916) 440-7145.

Common Violations:

Must display upon

- No DTSC Registration on file
- DTSC Registration on file, but Expired
- DTSC Registration not in possession

AUTmztWATURE)

(DATE)




## **EMERGENCY RESPONSE INFORMATION**



# **EMERGENCY RESPONSE INFORMATION**

(1) The basic description and <u>technical name</u> of the <u>hazardous material</u>

(2) Immediate hazards to health;

(3) Risks of fire or explosion;

(4) Immediate precautions to be taken in the event of an accident or incident;

(5) Immediate methods for handling fires;

(6) Initial methods for handling spills or leaks in the absence of fire; and

(7) Preliminary first aid measures



172.602 CFR49

# **EMERGENCY RESPONSE INFORMATION**

- Emergency Response Guidebook (ERG)
- Safety Data Sheet (SDS)
- Separate Sheet
- On the shipping papers

Common Violations:

- None in possession
- Wrong SDS's in possession
- ERG out-dated for hazmat



172.600,172.604 CFR49

### HAZARDOUS MATERIALS DRIVER TRAINING



# **DRIVER TRAINING**

- General Awareness Training
- Function Specific Training
- Safety Training
- Security Training
- o Initial Training (w/in 90)
- Recurring Training (3 yrs.)

### Common Violations:

- Driver has not received any hazmat training
- Refresher training not received





172.704 CFR49

PHASE 2 HANDS ON





- On top or tabbed
- Clearly visible or in holder on driver's side door
- Must be within reach with driver seat-belted
- Away from vehicle

#### **Common Violations:**

- None in possession
- Not on top or tabbed
- In sleeper or briefcase





177.817(e) CFR49

### DOT Identification Number

- Proper shipping name
- Hazard Class (Subsidiary hazard class)
- Packing GroupN.O.S. listed

#### Common Violations:

- PSD incorrect order
- Incorrect UN number
- Missing subsidiary hazard class
- Missing packing group
- No entry for N.O.S. entries





172.202(b) CFR49





172.202(b) CFR49

For Hazardous Wastes (RCRA), the word "Waste" must precede the Proper Shipping Name if waste is not included in the name.

# UN1760, Corrosive Liquids, n.o.s., 8, II



#### Common Violations:

• "Waste" not included on UHWM when required.



172.101(c)(9) CFR49

# PCS.	HM	DESCRIPTION OF ARTICLES AND MARKS	WEIGHT (LBS)
1	X	PLT UN1955, COMPRESSED GAS, TOXIC, N.O.S. ((PHOSPHINE, NITROGEN),	
	X	CYLINDER) 85900-3 CLASS 150 CYLINDER) 85900-3 CLASS 150 CYLIN1956, COMPRESSED GAS, N.D.S.,	110
		(1 CYLINDER) 85880-0 CLASS 70 ZHM HAZARDOUS MATERIALS	100
		CCS CALIFORNIA COMPLIANCE SURCHARGE	

- Total Quantity of packages
- Package Type
- Applicable Units of Measurement (ie. lbs.)
- Reportable Quantity "RQ"
- Emergency Response Telephone Number



172.202(a),172.203(c) CFR49

		1 11						01400	
	# OF	PKG	ID	DESCRIPTION OF ARTICLES	HAZARD	PACKING	NEM	CLASS	LABELS
	DOVES	Tuno			CLASS	GROUP	IRS	OR RATE	REQUIRED
	BUXES	Type	LINIO225	EIDEWORKS	13G	II			YES
(		4 G	010335	FIREWORKS	1.00				1.3G
	X	10	1110226	EIDEWORKS	14G	II			YES
(		40	0140330						1.4G
		_	A						

### Common Violations:

- No indication / incorrect indication of number of packages
- No indication / wrong indication of package type
- Total quantity not described with applicable units of measurement



172.202(a) CFR49

Emergency Response Telephone Numbers:

- Monitored at all times the hazardous material is in transportation, including storage incidental to transportation;
- The telephone number of a person who is either knowledgeable of the hazardous material being shipped and has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. A telephone number that requires a call back (such as an answering service, answering machine, or beeper device) does not meet these requirements.



172.604 CFR49

Common Violations:

- No Emergency Response telephone number listed on shipping papers
- Emergency Response telephone number out of service
- Emergency Response telephone number a personal cell # / Unable to provide required info.
- No current contract with Emergency Response Company





172.604 CFR49

#### HM listed first or with an "RQ" (Reportable Quantity)

NE	E	Rogers Chemical Company, Inc. 122 Industrial Park Centralia, MO 65255		
Ship To:		Shipped V	/ia:	
Midw	est Dr	ug Supply <b>UPN</b> Acme C	Carriers	
1304	Addit	Way 9701 N	I. Hartley	
Empor	ria, KS	S 75080 Murry,	MO 65255	
Units	HM	<b>Description</b> <i>S</i> <b>Contents</b>	Weight	
20 cyl		Bromine Pentaflouride, 5.1, UN1745, I, Person Unbelat	tion 300 lbs	
		Hazard, Zone A		
1 can		Paint, 3, UN1263, III, Ltd Qty		
1 ctn		Battery fluid acid, 8 UN2796, II, (packaged with electr	ric 571bs	
		storage batteries, dry)		
1 bx		#16 Nails		
1 drm	RQ	Aldrin, liquid, 6.1, NA2762, II, Poison	75 lbs	



172.201(a) CFR49

#### HM printed in contrasting color

NE	E	Rogers Chemical Company, I 122 Industrial Park Centralia, MO 65255	nc.	
Ship To:		Sh Sh	ipped Via:	
Midwe	est Dri	ig Supply UDN	Acme Carriers	
1304 /	Addit V	Way	9701 N. Hartley	у
Empor	ria, KS	75080	Murry, MO 652	255
<b>Units</b>	HM	Description of Contents		Weight
20 cyl		Bromine Pentaflouride, 5.1, UN1745, I, Possa	malation	300 lbs
		Hazard, Zone A		
1 can		Paint, 3, UN1263, III, Ltd Qty		10 lbs
1 ctn		Battery fluid acid, 8 UN2796, II, (packaged with	electric	05 lbs
		storage batteries, dry)		
1 bx		#16 Nails		
1 drm		Aldrin, liquid, 6.1, UN 2762, II, Poison		75 lbs



172.201(a) CFR49

### HM highlighted

NE	Er	Rogers Chemical Company 122 Industrial Park Centralia, MO 65255	y, Inc.
Ship To:		511	Shipped Via:
Midwe	est Dr		Acme Carriers
1304 A	Addit	Way	9701 N. Hartley
Empor	ia, KS	S 75080	Murry, MO 65255
Units	HM	Description of Contents	
20 cyl		Bromine Pentaflouride, 5.1, UN125, Pois	son-Inhalation
		Hazard, Zone A	
1 can		Paint, 3, UN1263, III, Ltd Qty	00
1 ctn		Battery fluid acid, 8 UN2796, II, (packaged	with electric
		storage batteries, dry)	シアト
1 bx		#16 Nails	<u> </u>
1 drm		Aldrin, liquid, 6.1, UN 2762, II, RQ, Poison	



172.201(a) CFR49



 Special Permits – must be marked with "DOT-SP" and corresponding special permit number

#### **Common Violations:**

- DOT-SP not entered on shipping paper
- Special permit not in possession or expired.



172.203(a) CFR49

 Radioactive materials – Name of each radionuclide, physical/chemical form, category of label, transport index

			1.00	Y- > 10		-	OV1	
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION		12.	- 13,	14				15,
(Including proper shipping name, hazard class, UN ID number,		DOT LABEL	TRANSPORT	PHYSICAL AND			IND.	VIDUAL
and any additional information)		"RADIOACTIVE"	INDEX	CHEMICAL FORM			RADIÓ	NUCLIDES
UN3321, Radioactive material, low specific activity (LSA-II),	NA		NA	Solid METALLIC OXIDES	Ag-110m	C-14	Co-58	Co-60
7, RQ (Radionuclides) One Each: Shielded cask with Poly		) (			Fe-55	H-3	J-129	Mn-54
HIC (S/N PO-614191-01)								
					Ni-63	Sb-125	Sr-90	Tc-99

### Common Violations:

 Missing / incorrect label types & TI's.



172.203(d) CFR49

 Radioactive materials – Package types, Activity, Highway Route Controlled Quantities, Exclusive Use consignments, Fissile

RQ, UN3332, RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL, FORM, 7
Radionuclide:         Cf-252         Qty Hazardous Mat'l:         2326.68 ug Cf-252 on 3/24/2017
Physical State: Solid Chemical Form: Metal Oxide
Package: GE Model 2502; U.S. DOT 7A Type A Container
Activity: <u>46.143 GBq (1.2471 Ci)</u>
Label: Radioactive Yellow III Transport Index: 19
Placards Required: YES
Security Seal No(s).: VAL 0000795
Exclusive-Use Instructions: <u>N/A</u>

#### **Common Violations:**

Missing "Exclusive Use" or "HRCQ"



172.203(d) CFR49

 Technical Names for n.o.s. / PSN identified by "G" column (1) 172.101 Table



Common Violations:

- No entry for n.o.s.
- o Incorrect entry for n.o.s.



172.203(k) CFR49

### • PIH / TIH



### **Common Violations:**

- "Poison Inhalation Hazard" or "Toxic Inhalation Hazard" not entered on shipping papers
- Improper Zone (A,B,C,D) entered on s/p's



172.203(m) CFR49

Shipper's Certification



#### Common Violations:

- No Certification on shipping papers
- Certification not signed / typed



172.204 CFR49

### Uniform Hazardous Waste Manifests

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In addition to all CFR 49 requirements, the hazardous waste manifest must be completed as required by the Health & Safety Code and Title 22 of the California Code of Regulations



172.205 CFR49

### Uniform Hazardous Waste Manifests

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- ✓ Generator EPA ID Number
- ✓ Page Numbers (all pages)
- ✓ Emergency Response Telephone #
- ✓ Manifest Tracking Number
- ✓ Generator / Transporter Info & EPA #s
- ✓ HW Shipping Descriptions
- ✓ HW Quantity & Type of Containers
- ✓ HW Total Quantity
- ✓ HW Unit of Measurement
- ✓ HW Waste Codes
- Signatures / Dates by Generator & Transporter



#### 172.205 CFR49

WASTE MANIFEST	34438 2 Pape 1 of 3.E	-\$00-424-9	e Phone 300	4. Manifes		S23	37.1	IK
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Designated Facility Name and Site Address				U.S. EPAID	Number		-	-
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96. U.S. DOT Description (including Proper Shipping Name, and Parking Group (if and))	Hazard Class, ID Number,	10, Contai	ners	11. Total	12. Unit	1	3. Waste Code	
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I certify that the waste minimization statement identified in 40 Ci	R 262.27(a) (if I am a large quantity generator)	or (b) (if I am a sma	Il quantity ge	nerator) is true.				
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### HAZARDOUS MATERIALS MATERIALS OF TRADE (MOT)



• An Exception within the DOT Regulations that allows some relief from the regulations for persons who transport hazardous materials (other than hazardous waste) by private motor carrier in direct support of a principal business (ie. gardening & pool service).



Restrictions associated with the MOT are:

- Packaging must be leak tight for liquids & gases and sift proof for solids – must be in the manufacturer's original packaging or a packaging of equal or greater strength and integrity
- Packages must be securely closed and secured against shifting and protected against damage







Restrictions associated with the MOT are: (continued)

- Outer packaging is not required for receptacles that are secured against shifting in cages, carts, bins, boxes or compartments
- Each package must be marked with a common name or proper shipping name to identify the contents



Restrictions associated with the MOT are: (continued)

- If a package contains a reportable quantity of a hazardous substance, it must be marked with "RQ"
- Maximum amount of a medium or lower hazardous material (PG II or III) in one package is 66 lbs. or 8 gallons





Classes 3, 5.1 and 8 or ORM-D

Package Gross Mass:

- PG I 1 pound or 1 pint
- PG II 66 pounds or 8 gallons
- PG III 66 pounds or 8 gallons





Classes 2.1 or 2.2

Cylinder Gross Mass:

• Not over 220 pounds





Restrictions associated with the MOT are: (continued)

- Maximum amount of hazardous materials on one vehicle is limited to 440 lbs.
- Operator of vehicle must know the materials are hazardous and be aware of MOT regulations





 MOT's do not require shipping papers, emergency response information, placarding, formal training, or record keeping

 This exception applies only to DOT-designated hazardous materials




## MATERIALS OF TRADE (MOT)

Common Violations:

- Hazardous materials packages not secured
- Exceeding maximum allowable aggregate gross weight of 440 pounds
- Hazardous materials packages not properly labeled
- Hazardous materials packages leaking



173.6 CFR49

















### TITLE 49 CODE OF FEDERAL REGULATIONS (49 CFR) 172.101 Columns 7 & 8







Non-Bulk
Bulk
Cargo Tanks
Spec / Non-Spec





Non-Bulk Packaging:

• A packaging which has:

(1) A maximum capacity of 450 L (119 gallons) or less as a receptacle for a liquid;

(2) A maximum net mass of 400 kg (882 pounds) or less and a maximum capacity of 450 L (119 gallons) or less as a receptacle for a solid; or

(3) A water capacity of 454 kg (1000 pounds) or less as a receptacle for a gas.



172.101 Table CFR49

Bulk Packaging:

• A packaging, including a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment. A bulk packaging has:

(1) A maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid;

(2) A maximum net mass greater than 400 kg (882) pounds and a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid; or

(3) A water capacity greater than 454 kg (1000 pounds) as a receptacle for a gas.



172.101 Table CFR49

Column 7 Column 8A Column 8B Special Provisions Exceptions Non-Bulk Packaging

#### Column 8C

#### **Bulk Packaging**







172.101 Table CFR49

 Package Identification – DOT Spec or UN standard packaging



#### Package Specification:

4G	Fiberboard Box
Z	Packing Group III
24.9	Kilograms
S	Solid or Inner Packaging
00	Year Manufactured
USA	Country of Origin
-	Name/Address of Manufacturer

)4G/Z24.9/S/00 USA/Zeneca Ag Products, Wilmington, DE

Contents: TWO-21/2 gal (9.46 L) plastic jugs

178.502 CFR49

ODI

#### Non-Bulk Packages

#### Common Violations:

 Unauthorized packaging





173.24(c) CFR49

#### Bulk Packages



#### Common Violations:

 IBC's – Overfilled past maximum fill limits



173.35(I) CFR49

#### Cargo Tank Package Identification & Inspections



- Specification Plate
- Internal Valve
- Emergency Remote
- Fusible Links
- Test Dates
- Venting



173+ CFR49

#### Cargo Tank Package Identification – Spec Plates

EST-MARK CERES, CALIFORNI DOT MC 306 AL 86 CERT IN. HG P.S.I.G. IN HG. TES P.S.I G L: SHELL 12 18 OC. AD MAT S. GAL #1 CAP BY CO TO REAR lbs./Ga ODU P.S.I.G P.S.I.G G.P.M. A lbs. TIRES bs ARE! ALL APPLICABLE FEDERAL MOTOR VEHICLE TE OF MANURACTUR



173+ CFR49

#### Cargo Tanks



• DOT Exemptions (DOT-E) / DOT Special Permits (DOT-SP)

- May relieve party from packaging, shipping paper, placarding, etc. requirements as specified in the exemption
- Must comply with all requirements of the exemption
- Must be party to exemption or authorized by the exemption to use
- Must make an additional entry on shipping paper & marking on the packaging
- Must be in possession (and not expired)



173+ CFR49



#### • Segregation Table – 177.848 CFR 49

Class or division		Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 gas zone A	2.3 gas Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 liq- uids PG I zone A	7	8 liquids only
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Explosives	1.4		•	•	•	•	•	0		0	0	0		0				0		0
Very insensitive explo- sives.	1.5	А	•	•	•	•	•	х	х	х	х	х	х	х	х	х	х	х	х	х
Extremely in sensitive explosives.	1.6		•	•	•	•	•													
Flammable gases	2.1		Х	х	0	х				х	0							0	0	
Non-toxic, non-flam- mable gases.	2.2		х			х														
Poisonous gas Zone A	2.3		х	х	0	х		х				х	х	х	х	х	Х			х
Poisonous gas Zone B	2.3		х	х	0	х		0				0	0	0	0	0	0			0
Flammable liquids	з		х	х	0	х				х	0					0		х		
Flammable solids	4.1		х			х				Х	0							Х		0
Spontaneously combus- tible materials.	4.2		х	х	0	х				х	0							х		х
Dangerous when wet materials.	4.3		х	x		х				х	0							х		0
Oxidizers	5.1	A	х	х		х				х	0	0						х		0
Organic peroxides	5.2		х	х		х				х	0							х		0
Poisonous liquids PG I Zone A.	6.1		х	х	0	х		0				х	х	х	х	х	х			х
Radicactive materials	7		х			х		0												
Corrosive liquids	8		х	х	0	х				х	0		0	х	0	0	0	х		

#### SEGREGATION TABLE FOR HAZARDOUS MATERIALS

#### • Segregation Table – 177.848



 Verification of various hazard classes & how they are stored, loaded and transported



#### • Segregation Table – 177.848 CFR 49





#### Non-Bulk Packages



- Proper shipping name (PSN)
- DOT Identification Number
- Others depending on circumstances (ie. Inhalation Hazard)



172.301(a) CFR49

#### Non-Bulk Packages



#### • Package Marked "Inhalation Hazard"



172.313 CFR49

- Non-Bulk Packages
  - Package Marked "Inhalation Hazard"

LIQUID

Unless Labeled or Placarded PIH



GAS



172.313 CFR49

#### Non-Bulk Packages



 Hazardous Substances and Reportable Quantities "RQ"

# • N.O.S. Not otherwise specified description



172.324(b) & 172.301(b) CFR49

Non-Bulk Packages

Special Permit packagings"DOT-SP" and permit number

<u>Common Violations</u>:Not marked on package





172.301(c) CFR49

- Non-Bulk Packages
- **Orientation Arrows**
- Required on two opposing sides
- Inner liquid packagings



#### **Common Violations:**

 Not transported in upright position



172.312(a) / 177.823(b) CFR49

Hazardous Waste Packages



In addition to any applicable DOT markings, every non-bulk hazardous waste container (<110 gal.) must have the:

- Hazardous Waste Statement
- Generator's name and address
- Manifest document tracking number



172.202(b) CFR49

#### • Hazardous Waste Packages



#### ORM-D Packages









172.316 CFR49

#### Explosive Hazardous Materials



EX-208294991

 Each package containing Class 1 materials must be marked with the EXnumber for each

substance





172.320 CFR49
• "Large Quantities" and Bulk Packages





#### • "Large Quantities"



- "Large Quantities" of a single HM > 8,820 lbs. in non-bulk packages
- Must display UN Number on all four sides of transport vehicle





172.301(a)(3) CFR49

#### Bulk Packages – ID Numbers

- On two opposing sides if < 1,000 gallons</li>
- On each side and each end if > 1,000 gallons







172.302(a) CFR49

#### Bulk Packages



 If transported in transport vehicle or freight container and the UN Number on the bulk packaging is not visible – all four sides of the transport vehicle



172.331(c) CFR49

#### Bulk Packages



 Poisonous by Inhalation: "Inhalation Hazard" on two opposing sides of the bulk package



172.313(a) CFR49



<u>Common Violations</u>:
No UN Numbers displayed
UN Numbers faded
Wrong UN Numbers displayed





172.331(c) CFR49



#### Common Violations:

#### • Hand written UN Numbers

('Replacement of ID Numbers' - if lost, damaged or destroyed during transportation)

Improper orientation





172.338 CFR49

CHICE AND

#### Cargo Tanks

Class 2 materials –

#### Proper Shipping Name (Nitrogen Refrigerated Liquid)

NTROGEN REPROCEMENTED



172.328(b) CFR49

Radioactive Non-Bulk Packages

Class 7 materials –



Gross mass marked if > 110 lbs.
Type of Package
Country of Origin
Radiation Symbol / Trefoil



#### 172.310 CFR49

#### Radioactive Bulk Packages





Class 7 materials -

- Gross mass marked if > 110 lbs.
- Type of Package
- Country of Origin
- Radiation Symbol / Trefoil



#### 172.310 CFR49



#### Non-Bulk Packages



- Display the label(s) specified in column 6 of 172.101 Table.
- Labels are required to be on same surface as the PSN and ID #



172.400 CFR49

#### Non-Bulk Packages





Common Violations:

- Durability (faded, torn, etc.)
- Labels missing
- Not displayed near PSN / ID Number

172.407 CFR49



#### Bulk Packages



 Display the label specified in column 6 of 172.101 Table <u>unless</u> placarded in accordance with Subpart F.



172.400 CFR49

#### • Bulk Packages





Common Violations:

- Faded
- Torn / Durability
- Missing



172.407CFR49

Subsidiary Hazard Labeling – Non-Bulk Packages



- Within 6 inches of each other
- Displayed near PSN / ID Number



172.402 CFR49

• Subsidiary Hazard Labeling - Bulk Packages



- Within 6 inches of each other
- Displayed near PSN / ID Number



172.406 CFR49

#### Subsidiary Hazard Labeling





#### Common Violations:

- Not displayed on same surface
- Not displayed near PSN/ID Number



172.406 CFR49

• "Overpack" – defined...

An enclosure that is used by a single consignor to provide protection or convenience in handling of a package or to consolidate two or more packages:

- Placed or stacked onto a load board such as a pallet and secured by strapping, shrink wrapping, stretch wrapping, or other suitable means, or
- Placed in a protective outer packaging such as a box or crate



#### Overpacks



 (ie.) Placed or stacked onto a load board such as a pallet and secured by strapping, shrink wrapping, stretch wrapping, or other suitable means.



Overpacks

 (ie.) Placed in a protective outer packaging such as a box or crate





#### Labeling Overpacks



 Must be labeled on exterior unless the labels representative of each hazardous material in the overpack are visible



#### Overpacks



#### Common Violations:

• No labeling on exterior of the overpack (No labels visible through shrink wrap)



172.400a CFR49

#### Overpacks



#### **Common Violations:**

 No labeling for packages contained within overpack bin / crate



172.400a CFR49



#### • Class 7 Radioactive Material Labeling



#### Category or label, Contents, Activity, Transport Index

172.406 CFR49

• Class 7 Radioactive Material Labeling



#### Class 7 Radioactive Material Labeling



#### • Class 7 Radioactive Material Labeling





#### Common Violations:

- Faded & torn labels
- o Illegible Contents, Activity, TI



172.406 CFR49

#### Class 7 Radioactive Material Labeling



#### Common Violations:

 Package TI or Surface Readings exceed maximum allowable limits



172.406 CFR49



#### Placards



 "Each bulk packaging, freight container, transport vehicle containing <u>any</u> quantity of a hazardous material <u>must</u> be placarded on each side and each end with the type of placards specified in Table 1 and 2 and in accordance with other placarding requirements of this subpart"



172.504 CFR49

Placards

- <u>ALL</u> hazardous materials must be placarded while in transportation!
- **However** there are *exceptions* and *exemptions* . . . .



172.504 CFR49

- Placarding Table 1
  - o 1.1 Explosives
  - 1.2 Explosives
  - 1.3 Explosives

- 5.2 (Organic peroxide Type B, temp controlled)
- o 6.1 PIH
- o 7 Radioactive (Yellow III)

- 2.3 Poison Gas
- 4.3 Dangerous When Wet



172.504(e) CFR49

- Placarding Table 2
  - o 1.4/1.5/1.6 Explosives
  - 2.1 Flammable Gas
  - o 2.2 Non-Flammable Gas
  - S Flammable-Combustible Liquid
  - 4.1 Flammable Solid

- 4.2 Spontaneously Combustible
- o 5.1 Oxidizer
- 5.2 Organic Peroxide
- o 6.1 Poison / Toxic
- 8 Corrosive



9 Miscellaneous

172.504(e) CFR49

• *Exception* for less than 454 kg (1,001 pounds):

 Except for bulk packagings and hazardous materials subject to 172.505, when hazardous materials covered by Table 2 of this section are transported by highway, <u>of cards are not</u> required on –

> A transport reputie of freight container which contains less than 5, ket (1,001 pounds) aggregate gross weight finate dous materials covered by Table 2.



172.504(c) CFR49
- Placarding Requirements
- Placards <u>Required</u> if.....
- o Table One → Any Amount
- o Bulk Package → Any Amount



### Placarding QUIZ

UN1206, Heptanes, 3, PGII

30 pails @ 900 lbs.



What placards are required to be displayed on each side and each end of the transport vehicle?

# NONE



#### Placarding QUIZ

UN1206, Heptanes, 3, PGII 30 pails @ 900 lbs.



What placards are required to be displayed on each side and each end of the transport vehicle?





172.504 CFR49

## UN1866, Resin Solution, 3, PGIII

4 boxes @ 220 lbs.



#### Placarding QUIZ

UN1206, Heptanes, 3, PGII 30 pails @ 900 lbs.



What placards are required to be displayed on each side and each end of the transport vehicle?



172.504 CFR49

UN3260, Corrosive Solid, Acidic, Inorganic, n.o.s. (Monopersulfate Compound), 8, PGIII 6 pails @ 150 lbs.



#### Placarding QUIZ

UN1206, Heptanes, 3, PGII 300 pails @ 27,000 lbs.

UN3260, Corrosive Solid, Acidic, Inorganic, n.o.s. (Monopersulfate Compound), 8, PGIII 72 pails @ 1,800 lbs.

UN2468, Trichloroisocyanuric Acid, Mixture, Dry, 5.1, PGII 1 box @ 10 lbs.







What placards are required to be displayed on each side and each end of the transport vehicle?



#### Placarding QUIZ

UN1206, Heptanes, 3, PGII 30 pails @ 900 lbs.



What placards are required to be displayed on each side and each end of the transport vehicle?





172.504 CFR49

## UN1866, Resin Solution, 3, PGIII

1 IBC @ 2,700 lbs.



#### Prohibited Placards

- Can not display hazardous materials placards unless transporting HM
- The placard must represent the hazardous material offered for transportation
- No sign, advertisement, or slogan (such as "Drive Safely") that could be confused with any placard





172.502 CFR49

#### Permissive Placarding

- Placards may be displayed for a hazardous material (even if not <u>required</u>) as long as the placarding conforms to all other placarding requirements.
- Each side and each end, durability, color, placement, etc.





172.502 CFR49

• Class 7 - Radioactive Materials Placards

 Radioactive Placards: REQUIRED when Yellow-III labels are affixed to packages – also required for exclusive-use shipments of low specific activity materials and surface contaminated objects



#### • Class 7 - Radioactive Materials Placards







Class 9 Materials - Exception

 Class 9 Placard <u>Not</u> Required for Domestic Transportation (unless Bulk)







### Subsidiary Hazards

- Poison Inhalation Hazard
- Radioactive Materials
- Dangerous When Wet Materials



#### o "Dangerous" Placards

- HM must be in Non-Bulk Packages
- Two or more categories of HM that require different placards in Table 2
- May be placarded with a "DANGEROUS" placard instead of the separate placards for the Table 2 materials





172.504(b) CFR49

#### o "Dangerous" Placards



However.....

When 1,000 kg (2,205 pounds) aggregate gross weight or more of one category of material is loaded therein at one loading facility, the placard specified in Table 2 for that category must be applied.



172.504(b) CFR49

#### Placarding QUIZ

UN1206, Heptanes, 3, PGII 30 pails @ 900 lbs.



What placards are required to be displayed on each side and each end of the transport vehic

DANGEROUS

UN3260, Corrosive Solid, Acidic, Inorganic, n.o.s. (Monopersulfate Compound), 8, PGIII 6 pails @ 150 lbs.



#### Placarding QUIZ

UN1206, Heptanes, 3, PGII 300 pails @ 27,000 lbs.

UN3260, Corrosive Solid, Acidic, Inorganic, n.o.s. (Monopersulfate Compound), 8, PGIII 72 pails @ 1,800 lbs.

UN2468, Trichloroisocyanuric Acid, Mixture, Dry, 5.1, PGII 1 box @ 10 lbs.



#### Placards

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))
X	1 UH1415, Waste Lithium, 4.3, PGT
9a. HM∖	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))
<b>X</b>	<sup>1</sup> UN1744, WASTE BROMINE, B.O. 1, PG Have Z ZNAMINATION INTERNOTZONE A (Bromine and Water)



172.504 CFR49

#### **Common Violations:**

 Table 1 hazardous materials NOT placarded

Placards



#### **Common Violations:**

• Missing placards – required to be displayed on each end and each side



#### Placards





#### **Common Violations:**

Durability and attachment of placards



172.516, 172.519 CFR49

#### Placards





#### **Common Violations:**

Over 1,001 lbs. aggregrate gross weight
– Missing placards



#### Placards





#### **Common Violations:**

• Placard orientation - horizontally



172.516 CFR49

#### • Placards



Common Violations:

• Faded placards



172.519 CFR49

Placards





#### **Common Violations:**

 Subsidiary Hazard Placards NOT displayed



172.505 CFR49

#### Placards





#### **Common Violations:**

 Covering / taping over the inner border of placards



172.519 CFR49

### HAZARDOUS MATERIALS TWO-WAY COMMUNICATION



### HAZARDOUS MATERIALS TWO-WAY COMMUNICATION



If placards required:

- Two-Way Communication-
- maintained in good working order,
- enables driver to contact personnel responsible for the safety operations of the motor carrier in the event of an emergency



32001(c)(4)VC

### HAZARDOUS MATERIALS TWO-WAY COMMUNICATION



**Common Violations:** 

- Dead battery phone not functional
- No phone, nextel, etc. in possession



32001(c)(4)VC

### HAZARDOUS MATERIALS SAFETY EQUIPMENT



### HAZARDOUS MATERIALS SAFETY EQUIPMENT



Fire Extinguishers:

#### <u>10 B:C</u>

 Every motor vehicle... transporting cargo requiring placards

#### <u>20 B:C</u>

• Every tank vehicle... used to transport flammable or combustible liquids

Class B - Flammable liquids Class C - Electrical fires



### HAZARDOUS MATERIALS SAFETY EQUIPMENT

Each fire extinguisher shall be securely mounted... clearly marked compartment... readily accessible

Fire extinguishers shall be maintained... efficient operating condition... means to determine if they are fully charged



#### **Common Violations:**

Not charged or securely mountedNot in possession



### HAZARDOUS MATERIALS LOCKING DEVICES



### HAZARDOUS MATERIALS LOCKING DEVICES

Locking Devices

- The enclosed cargo body, when the display of placards is required, shall be locked and remain locked during transit of the hazardous materials so as to prevent any unauthorized entry and shall be opened only during loading, unloading, or at the direction of a peace officer, an authorized employee of the department.
- "Enclosed cargo body"- meaning a fully enclosed area that is an integral part of the vehicle and designed to encapsulate the entire load, such as a van body or an intermodal freight container.



32001(c)(5)(A) VC

### HAZARDOUS MATERIALS LOCKING DEVICES

**Locking Devices** 

A locking device includes a properly fastened pad lock, bolt seal, cable lock, 3/16 inch pig tail twist lock or similar devices that can only be removed by the use of bolt cutters. The intent of section 32001(c)(5)(A) VC is to ensure that an effective form of locking device is used to secure the doors. A plastic, thin gauge metal or wire 'seal', does not qualify as a lock, nor do devices that could be removed using a standard pair of pliers or wire cutters.



CHP MM

### HAZARDOUS MATERIALS LOCKING DEVICES

#### Locking Devices



#### Common Violations:

Not equipped with locking deviceLock in possession, not attached





32001(c)(5)(A) VC

### HAZARDOUS MATERIALS SECUREMENT



### HAZARDOUS MATERIALS SECUREMENT

#### Securement

#### • Required!!

- Most prevalent violation!!
- Highest accident causing problem for hazardous materials while in transportation!!




Securement

"relative motion between o "Any pack" part of a secured as to a use a secured as to a use a secured as to a use a secure of a secure of a secure between pack o a ditions normally o transport -hifting' material, not tra "conditions normally incident to transportation" hich it is Lany incident to



• Securement Misconceptions . . . .

 No. 1: Hazardous materials packages, while in transport, may shift as long as the shifting of the hazardous materials packages is not "significant".



• Securement Misconceptions . . . .

• No. 1: Hazardous materials ba kages, while in transport, may shift as ong as the shifting of the hazardous materials parkages is not "significant".



• Securement Misconceptions . . . .

 No. 2: Shrink-wrapping hazardous materials packages to a wooden pallet ("overpack") is a compliant method for securing the hazmat load.



• Securement Misconceptions . . . .

 No. 2: Shrink-wrapping hazardous materials packages to a wooden pallet ("overpack") is a compliant method for securing the hazmat load.



#### o "Overpacks"



• An overpack means an enclosure that is used by a single consignor to provide protection or convenience in handling of a package or to consolidate two or more packages. An example of an overpack is one or more packages placed or stacked onto a load board such as a pallet and secured by strapping, shrink wrapping, stretch wrapping, or other suitable means.



171.8 CFR49

#### o "Overpacks"

 Although this consensus and industry standard for securement is suitable and permitted for non-hazardous materials packages, by shrinkwrapping hazardous materials packages to the pallet, the pallet is defined by the US DOT as an "overpack" and subsequently subject to the strict guidelines set forth in the Federal Motor Carrier Safety **Regulations and Hazardous** Materials Regulations, Title 49, Code of Federal Regulations.





• 2002 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation* 

 "The requirements in 177.834(a) and (g) are met when the packages of hazardous materials are secured in a manner that precludes their movement within the transport vehicle, and between the packages themselves, <u>under conditions normally</u> <u>incident to transportation</u>."



U.S. Department of Transportation

Research and Special Programs Administration

Ref. No. 02-0044



• 2002 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation* 

 "These conditions most often include vehicle starting, stopping, cornering, accident avoidance, and varied road conditions. If the packages are overpacked, the overpack itself <u>must</u> also be secured within the transport vehicle."



U.S. Department of Transportation

Research and Special Programs Administration

Ref. No. 02-0044



• 2002 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation* 

 "Specific methods for securing packages in a motor vehicle are not defined in the HMR. However, general requirements which address protection of shifting cargo are found in the <u>Federal Motor</u> <u>Carrier Safety Regulations (49</u> <u>CFR Parts 300-399</u>)."



U.S. Department of Transportation

Research and Special Programs Administration

Ref. No. 02-0044



• 2016 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation* 

#### Scenario w/ photos:

- Four drums are loaded on one pallet,
- Drums on the pallet are shrink-wrapped to the pallet,
- Heavy cardboard is placed on top of each set of four drums & banded to a pallet,
- An even number of these pallets are loaded side-by-side in a freight trailer,



U.S. Department of Transportation

#### Research and Special Programs Administration



• 2016 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation* 

#### Scenario w/ photos:

- Pallets are loaded in the freight container with approximately 3-4 inches of void area between them,
- Pallets closest to the freight container door are secured with two straps.



U.S. Department of Transportation

#### Research and Special Programs Administration



#### • 2016 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation*





U.S. Department of Transportation

#### Research and Special Programs Administration



#### • 2016 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation*





U.S. Department of Transportation

#### Research and Special Programs Administration



• 2016 US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) *Interpretation* 

#### US DOT's OPINION:

- The scenario provided <u>does not</u> comply with the intent of 177.834(a) CFR 49.
- The void space between pallets provides space in which the pallets can shift during transportation.



U.S. Department of Transportation

#### Research and Special Programs Administration



#### Securement - Overpacks



 To reiterate, US DOT has taken an *extremely conservative* interpretation on this regulation - by simply shrink-wrapping hazardous materials packages onto a pallet does not meet the load securement requirements unless the entire unit is secured within the vehicle.



• Securement Misconceptions . . . .

 No. 3: Hazardous materials packages and hazardous materials overpacks are too heavy to shift while in transport. The friction of the packages or pallets on the floor of the trailer along with the pallets being placed against each other is more than enough to prevent shifting.



• Securement Misconceptions . . . .

 No. 3: Hazardous materials packages and hazardous materials overpacks are too heavy to shift while in transport. The friction of the packages or pallets on the floor of the trailer along with the pallets being placed against each other is more than enough to prevent shifting.



#### Securement

- Gravity, a common excuse for unsecured loads, is NOT recognized by the US DOT and is not an acceptable means of securing cargo.
- Packages and overpacks shift constantly while in transport!





• Securement Misconceptions . . . .

 No. 4: The term "conditions normally incident to transportation" refers only to the forward and rearward direction of a transport vehicle.



• Securement Misconceptions . . . .

 No. 4: The term "conditions normally incident to transportation" refers only to the forward and rearward direction of a transport vehicle.



• "Conditions normally incident to transportation"

 Curiously, US DOT never defines the term "conditions normally incident to transportation".

 US DOT has routinely described this term as "vehicle starting, stopping, and cornering; accident avoidance, and varied road conditions" –



• "Conditions normally incident to transportation"

- Although the HMR do not actually define the phrase "conditions normally incident to transportation", PHMSA has interpreted it, through various rulemakings and letters of clarification.
- Thus, hazardous materials packages are required to be secured in a manner to ensure the packages DO NOT shift in any way while experiencing these conditions.

• "Conditions normally incident to transportation"

 It is important to note, when hazmat packages or overpacks shift, damage to the package or package containment device may occur which may result in the spilling or release of the hazardous materials or even a catastrophic package failure.



• Securement Misconceptions . . . .

 No. 5: A shoring bar / load bar can be utilized at the back of a trailer to secure an entire trailer of hazardous materials.



• Securement Misconceptions . . . .

• No. 5: A shoring bar / load bar can be utilized at the back of a trailer to secure an entire trailer of hazardous materials.



#### Securement – Load Bars

#### • E-Tracking Steel / Aluminum Load Bars – On average a Working Load Limit of only 3,000 - 6,000 lbs.







Securement – Load Bars

#### • Steel / Aluminum Adjustable Load Bars – have on average a Working Load Limit (WLL) of only 3,000 lbs.





#### Securement – Load Bars

Keep in mind:

 Quantity / Weight of hazardous materials





#### Securement – Load Bars

Keep in mind:

 Type of trailer (sidewalls, e-tracking systems, refer, etc.)





• Securement Misconceptions . . . .

 No. 6: 1 synthetic web strap can be utilized to secure an entire load of hazardous materials.



• Securement Misconceptions . . . .

• No. 6: 1 synthetic web strap can be utilized to secure an entire load of hazardous materials.



• Securement Misconceptions . . . .

Federal Motor Carrier Safety Regulations §393.106 requires that:

 The aggregate working load limit (WLL) for tie downs used to secure an article or group of articles against movement must be at least one-half times the weight of that article or group of articles.



• Securement Misconceptions . . . .

 Working Load Limit (WLL) is the maximum load a component or assembly should be subjected to during routine use. These values apply to new products in normal working conditions and are marked by the manufacturer on the synthetic web tie down assembly or other cargo securement system.



• Securement Misconceptions . . . .

#### Example of Working Load Limit and Determining Tie Downs Needed

- Weight of article being secured is 24,000 LB
- Working Load Limit of the synthetic web tie down is 3,333 LB
- Required aggregate Working Load Limit is: 1/2 x 24,000 LB = 12,000 LB
- Minimum number of tie downs: 12,000 LB / 3,333 LB = 4 tie downs





• Securement Misconceptions . . . .

Tie Downs cannot be damaged or knotted




• Securement Misconceptions . . . .

 No. 7: Bungee cords and tarp straps with WLL's are suitable methods of primary securement for loads of hazardous materials.



• Securement Misconceptions . . . .

 No. 7: Bungee cords and tarp straps with WLL's are suitable methods of primary securement for loads of hazardous materials.



• Securement Misconceptions . . . .

• US DOT has also made an *Interpretation* and clarified that "bungee cords and tarp straps are not suitable for use as tie downs, and are equally unsuited to having an assigned WLL. There is no intention to prohibit the use of these devices as supplementary restraints.







#### Federal Motor Carrier Safety Regulations 49 CFR Parts 300-399



Federal Motor Carrier Safety Regulations, Subpart I §393.100+ CFR 49

Describes :

• General requirements for the protection against shifting and falling cargo

- Minimum performance criteria for cargo securement devices & systems (ie. Chain, rope, steel strapping, synthetic webbing, cordage and friction mats)
- Working Load Limits (WWL) for tie downs
- Requirements for front end structures used as part of a cargo securement system

#### Federal Motor Carrier Safety Regulations, Subpart I §393.100+ CFR 49

Also describes specific requirements by commodity types:

- Logs
- Lumber / Building products
- Metal Coils
- Paper Rolls
- Intermodal Containers
- Automobiles
- Heavy vehicles & equipment
- Flattened / crushed vehicles
- Large boulders



• Federal Motor Carrier Safety Regulations §393.104 CFR 49:

- When devices or systems are utilized to secure cargo to or within a vehicle, they <u>must</u> conform to the applicable requirements of §393.104 through § 393.136.
- Prohibits the use of damaged securement devices.
- If utilizing tie downs, each tie down <u>must</u> be attached and secured in a manner that prevents it from becoming loose, unfastening, opening, or releasing while the vehicle is in transit.





• Federal Motor Carrier Safety Regulations §393.104 CFR 49:

- Vehicle structures, floors, walls, decks, tie down anchor points, headboards, bulkheads, stakes, posts <u>must</u> be strong enough to meet certain performance standards and can not be damaged or have weakened components.
- Materials utilized for dunnage, chocks, cradles, shoring bars, blocking and bracing <u>must</u> not have damage or defects which would compromise the effectiveness of the securement system.





• Federal Motor Carrier Safety Regulations §393.106 CFR 49:

- Covers general securement requirements which are applicable to the transportation of <u>all types of articles of cargo.</u>
- Cargo <u>must</u> be firmly immobilized or secured on or within a vehicle by structures of adequate strength, dunnage (*loose materials used to support or protect cargo*) or dunnage bags (*inflatable bags intended to fill space between articles of cargo or between cargo and the wall of the vehicle*), shoring bars, tie-downs or a combination of these.





#### • Securement

- The chosen securement methods must protect the packages / overpacks and ensure they are secured against shifting, including "relative motion" between packages / overpacks under circumstances normally incident to transportation.
- Again, with respect to the term "relative motion between packages", US DOT only provides a basic characterization that "packages <u>must not shift</u> during normal transportation conditions".



- Securement
- With that said, one can interpret that to mean <u>hazardous</u> <u>materials packages are not allowed to shift at any point</u> <u>within the vehicle while in transport</u>.





#### Package Integrity



- Each package used for the shipment of hazardous materials shall be designed, constructed, maintained, filled, its contents so limited, and closed, so that under conditions normally incident to transportation –
- There will be no identifiable release of hazardous materials to the environment.



173.24 CFR49

• Package Integrity

• There will be no hazardous material residue adhering to the outside of the package during transport.





173.24 CFR49

IBC Integrity

 No hazardous material may remain on the outside of an IBC





173.35(f) CFR49

Package Integrity

#### Some examples of leaking packages



173.35(f) CFR49





















# SAFETY CONSIDERATIONS FOR THE FIRST RESPONDER

with regards to hazmat transportation regulations AZM4

Hazardous Materials Incidents

- Between 2014 and 2015, there were 16,711 hazardous materials incidents
- Between 2011 and 2015, there were 2,593 serious incidents attributable to hazardous materials
- Between 2011 and 2015, 87.1% of all hazardous materials serious incidents occurred in the <u>highway mode</u>



PHMSA Stats

Hazardous Materials Incidents

- When a incident occurs involving a release, or threatened release, of a hazardous material -
- First Responders are dispatched to the scene





Hazardous Materials Incidents

- Our Hazmat response is governed by laws, regulations, plans and policies.
- All of these laws, and the regulations issued under their authority, have shaped our hazmat response to safeguard <u>life</u>, <u>environment</u> and <u>property</u>.



Hazardous Materials Incidents

 Hazardous materials response and training is outlined in Title 8 California Code of Regulations §5192(q) and Title 29 Code of Federal Regulations §1910.120(q).



State and Federal Laws, Regulations, & Training governing HAZARDOUS MATERIALS EMERGENCY RESPONSE HMR governing hazmat vehicles, packages, labels, markings, S/P's, etc.



# A different PERSPECTIVE
#### SAFETY CONSIDERATIONS

Hazardous Materials Incidents

In a...



Incoming First Responders

- Law enforcement, fire departments, hazardous materials response teams, etc.
- Responsibilities when responding to an incident involving the hazardous materials in your transport vehicle...



# HAZARDOUS MATERIAL **DO NOT ENTER**

- ARRIVE ON SCENE SAFELY – ACCESSING THE SITE UPWIND, UPHILL AND UPSTREAM.

- ISOLATE AND DENY ENTRY WITH RECOMMENDED INITIAL ISOLATION DISTANCES DESCRIBED IN THE ERG.

#### - ENSURE ALL MANDATORY NOTIFICATIONS HAVE BEEN MADE.

#### - INITIALIZE BOTH LOCAL AND STATE EMERGENCY RESPONSE PLANS

OAKLAN

# HAZARDOUS MAT

Intry Team

# CONTRA COSTA HAZMAT

- IMPLEMENT COMMAND STRUCTURE "ICS" WITH ALLIED AGENCIES.

- INITIATE THE IDENTIFICATION AND HAZARD ASSESSMENT OF THE HAZARDOUS MATERIAL/S INCLUDING THE IDLH.

- DEVELOP A SITE SAFETY AND CONTROL PLAN BASED ON RISK ASSESSMENT, CONTROL MEASURES AND AVAILABLE RESOURCES.

- DETERMINE AND IMPLEMENT PROTECTIVE ACTIONS BASED ON SITE AND ENVIRONMENTAL HAZARDS – WITH THE USE OF AIR DISPERSION MODELING.

#### - PERFORM SPECIALIZED RESPONSE OPTIONS – CONTAINMENT, CONTROL OR NON-INTERVENTION.

- SELECT APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPONDERS.

#### - IMPLEMENT APPROPRIATE DECONTAMINATION MEASURES.

- DETERMINE ASSIGNMENTS, TASKS, COMMUNICATIONS, EXPOSURE LIMITS BASED ON RELATIVE TOXICITY (ENCOMPASSING PEL, TLV, STEL, & IDLH), CONTROL ZONES, SURVEY INSTRUMENTATION AND AR MONITORS, ETC...



#### SAFETY CONSIDERATIONS

#### Hazard Assessment



Will something bad happen now?
Where can I get info about this?
What will the stuff do?
How can it hurt me?
What can I do about it?

Fatalities in hazmat

- 90% involve flammables
- 9% involve toxic gases

Half of all injuries involve corrosives



#### SAFETY CONSIDERATIONS

Hazard Assessment

Initially based on HMR:

- HM Shipping Papers
- HM Markings
- HM Labels
- HM Placards
- HM Container types / shapes



Hazmat Transportation Regulations provide numerous recognition clues for incoming First Responders.





## SAFETY CONSIDERATIONS FOR THE FIRST RESPONDER

Scenario 1





Scenario 1

Emergency Response Guidebook Based off hazardous materials placards:

# FLAMMABLE

Scenario 1

- ERG Book Initial Isolation distance:
- HM 3 Flammable Liquid HM 4.1 Flammable Solid HM 8 Corrosive Liquid / Solid
- o HM 9 3077 Solid

150 feet in all directions







Scenario 1

Sol

ی Book Initial Is on Istance:

50 feet in arections

and liquids

A guidebook intended for use by first responders during the initial phase of a transportation incident involving dangerous goods/hazardous materials 2016 **EMERGENCY** RESPONSE **GUIDEBOOK** Transports Canada Transport Canada 2 \* SCT U.S. Department of Transportation eline and



Scenario 1

- ERG Book Initial Isolation distance:
- Solids and liquids....

and

# Flammable Gas

330 feet in all directions





Scenario 1

• Hazard Assessment:



- Initial Isolation Distances more than doubled 150 feet to 330 feet
- Perimeters, Appropriate PPE, Monitors, Atmospheric Monitoring, Ignition Sources, Vapor Pressures, Vapor Density, Weather Considerations, Wind Directions, etc.



## SAFETY CONSIDERATIONS FOR THE FIRST RESPONDER

Scenario 2







Semi-Trailer with "Non-Flammable Gas - 2" placard
Large white cloud emitting from rear of semi-trailer
Clear, Sunny, 85 degrees, low wind @ 2 knots





Scenario 2

- ERG Book Initial Isolation distance:
- HM 2.2 Non-Flammable
   Gas

#### 330 feet in all directions





Scenario 2









Scenario 2

- ERG Book Initial Isolation distance:
- HM 2.2 Non-Flammable
   Gas BULK PACKAGE of

UN 1005 Anhydrous Ammonia – Toxic Inhalation Hazard

500 feet in all directions







Scenario 2

- Hazard Assessment:
- Initial Isolation Distances increased 330 feet to 500 feet



- Toxic by Inhalation! Protection Action Distances in ERG Table 1 and Table 3!
- Protective Actions, Perimeters, Appropriate PPE, Monitors, Atmospheric Monitoring, Ignition Sources, Vapor Pressures, Vapor Density, Weather Considerations, Wind Directions, etc.



## SAFETY CONSIDERATIONS FOR THE FIRST RESPONDER

Scenario 3



Scenario 3

• Box truck with no hazardous materials placards displayed

- Driver states he is transporting (1) non-bulk package of Table 2 hazardous material - *"hazard class 4.2* Spontaneously Combustible material" - weighing 12 lbs.
- Driver can not find the required hazardous materials shipping papers
- Flames and smoke emitting from within the rear cargo area
- o Cloudy, 78 degrees, medium wind @ 8 knots





Scenario 3

 ERG Book Initial Isolation distance:

• Hazard Class 4.2:

ERG Page 136:
Solid – 75 Feet
Liquid – 150 Feet





#### **150 Feet in all Directions**

Scenario

• Hazard (

**ERG** Page

Small Fire
• Water sp
wet earth.

Large Fire
- Water sp





Scenario 3

• Hazard Class 4.3 Placard:

ERG Page 139:

#### DO NOT USE WATER OR FOAM.

Small Fire: Dry chemical, soda ash, lime or sand.

Large Fire: DRY sand, dry chemical, soda ash or lime or withdraw from area and let fire burn.





Scenario 3

- If the driver was in possession of the required hazardous materials shipping papers,
- And the shipping papers were provided to first responders....

UN3394. ORGANOMETALLIC SUBSTANCE LIQUID, PYROPHORIC, WATER-REACTIVE (N-BUYLLITHIUM IN HEXANES), 4.2 (4.3, 3), PGI



DANGEROUS WHEN

Scenario 3

• UN 3394 – ERG Page 136:

DO NOT USE WATER, CO<sub>2</sub> OR FOAM ON MATERIAL
 ITSELF. Some of these materials may react violently with water.

Small Fire:

Dry chemical, soda ash, lime or DRY sand, EXCEPT for UN1384, UN1923, UN1929 and UN3342.

Large Fire: DRY sand, dry chemical, soda ash or lime EXCEPT for UN1384, UN1923, UN1929 and UN3342, or withdraw from area and let fire burn.

CAUTION: UN3342 when flooded with water will continue to evolve flammable Carbon disulfide/Carbon disulphide vapors.



DANGEROUS WHEN
Scenario 3

• Hazard Assessment:

#### **Responding to a vehicle FIRE! ERG Page 136:**

Hazardous materials involved:

- May ignite on contact with moist air or moisture.
- May burn rapidly with flare-burning effect.
- Some react vigorously or explosively on contact with water.
- Some may decompose explosively when heated or involved in a fire.
- May re-ignite after fire is extinguished.
- Runoff may create fire or explosion hazard.
- Containers may explode when heated.
- Fire will produce irritating, corrosive and/or toxic gases.
- Inhalation of decomposition products may cause severe injury or death.
- Contact with substance may cause severe burns to skin and eyes.
- Runoff from fire control may cause pollution.





#### SAFETY CONSIDERATIONS

## Hazardous Materials Incidents Happen



























#### SAFETY CONSIDERATIONS

# **SAFETY FIRST!**

State and Federal Laws, Regulations, & Training governing HAZARDOUS MATERIALS EMERGENCY RESPONSE HMR governing hazmat vehicles, packages, labels, markings, S/P's, etc.





Safety First

Responding to hazardous materials incidents can be injurious and deadly!

- First Responder lives are on the line.
- We will follow established protocols, guidelines & training for our Safety!
- We can only hope the transportation industry does the same!









- There is an abundance of strict, State and Federal, regulations concerning hazardous materials & hazardous waste while in transportation.
- And often times they may seem overwhelming and hard to swallow.





 The CHP has always been grounded and committed in both the belief and practice of providing the transportation industry training in a myriad of commercial aspects, including hazardous materials transportation regulations, at no cost.















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IN CONCLUSION . . .
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• Having said that, there needs to be a fair & level playing field for ALL transporters, both small or large.

 Only through education, inspections and enforcement can the CHP help achieve safety, consistency and compliance.

 Compliance with the HMR's will help ensure the SAFETY of truck drivers, the motoring public, FIRST RESPONDERS, and our environment!



# **QUESTIONS?**

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