



Iowa Department
of Transportation

Office of Motor Vehicle Enforcement





**Iowa Department
of Transportation**

Hazardous Materials Regulations



What is a Hazardous Material?

- ▶ A substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has been designated as hazardous under the Federal hazardous materials transportation law. The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes in part 173 of the Hazardous Material Regulations.



What is Hazardous Waste?

- ▶ Hazardous waste is a hazardous material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR part 262.





Iowa Department of Transportation

- ▶ Who must comply with the US DOT Hazardous Materials Regulations?





Iowa Department of Transportation

1. Those who transport Hazardous Materials in commerce.
2. Those who cause Haz-Mat to be transported.
3. Those who manufacture or maintain packages qualified for Haz-Mat transport.
4. Those who indicate that Haz-Mat is present when it is not.



HAZARD CLASSES

- ▶ There are nine individual Hazard Classes, some of which are further divided into Divisions.



Class 1 Explosives

- ▶ Explosives with mass explosion hazard
 - ▶ Division 1.1
- ▶ Explosive with projection hazard
 - ▶ Division 1.2
- ▶ Explosive with fire hazard and minor blast or projection hazard
 - Division 1.3



Class 1 Explosives continued

- ▶ Explosives with no significant blast hazard
 - ▶ Division 1.4
- ▶ Very insensitive explosives; blasting agents
 - ▶ Division 1.5
- ▶ Extremely insensitive detonating articles
 - Division 1.6



Class 2 Gases

- ▶ Flammable Gases

- ▶ Division 2.1



- ▶ Non-Flammable Gases

- ▶ Division 2.2



- ▶ Poison/Toxic Gases

- ▶ Division 2.3



Class 3 Flammable Liquids

- ▶ Flammable liquids

- Gasoline, Ethanol, Etc.



- ▶ Combustible Liquids

- Diesel fuel, Kerosene



Class 4 Flammable solids; Spontaneously combustible materials; Dangerous when wet materials

- ▶ Flammable solids

- ▶ Division 4.1



- ▶ Spontaneously combustible materials

- ▶ Division 4.2



- ▶ Dangerous when wet materials

- Division 4.3



Class 5 Oxidizers and Organic Peroxides

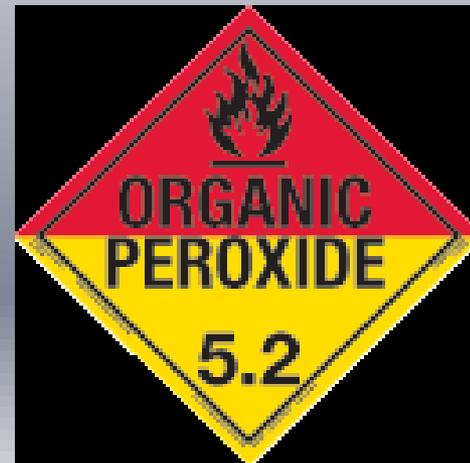
- ▶ Oxidizers

- ▶ Division 5.1



- ▶ Organic peroxides

- Division 5.2



Class 6 Toxic Materials & Infectious substances

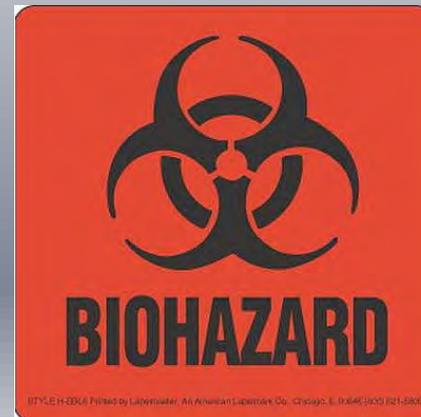
- ▶ Toxic materials

- ▶ Division 6.1



- ▶ Infectious substances

- Division 6.2



Class 7 Radioactive Materials



Class 8 Corrosive materials



Class 9 Miscellaneous Dangerous Goods



Hazardous Material Communication

- ▶ There are four different ways that we communicate that Hazardous Materials are present:

1. Shipping Papers
2. Markings
3. Placards
4. Labels



SHIPPING PAPERS

SHIPPING PAPERS



SHIPPING PAPER DESCRIPTION

Shipping description must include –

- (1) Identification number (“UN” *or* “NA”)
- (2) Proper shipping name
- (3) Hazard class or division



SHIPPING PAPER DESCRIPTION

- (4) Packing group if applicable (none for class 2, 7, or ORM-D)**

- (5) Total quantity of material covered by the description (440 lbs/13 gallons)**

- (6) Number + Type of Packages (12 boxes)**



Subsidiary Hazard Classes

- ▶ Except for combustible liquids, the subsidiary hazard class/classes or subsidiary division number(s) must be entered in parentheses immediately following the primary hazard class or division number



Special Rule For Hazardous Waste

If the word “waste” is not included in the hazardous material description in Column 2 of the Table, the proper shipping name for a hazardous waste (as defined in [§171.8](#) of this subchapter), shall include the word “Waste” preceding the proper shipping name of the material. For example: Waste acetone.



Additional Requirements

(1) Shipper's Certification

“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 the Department of Transportation”

-OR-



Additional Requirements

“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”



Additional Requirements

(2) Emergency Response Telephone Number

- ▶ Must be entered on a shipping paper immediately following the description of the hazardous material -OR-
- ▶ Must be entered on the shipping paper in a prominent, readily identifiable and clearly visible manner (highlighted, bold, etc.) and is identified as an EMERGENCY CONTACT #



Additional Requirements

(2) Emergency Response Telephone Number

- ▶ The name of the person (shipper) or contract number associated with the Emergency Response Telephone Number must be entered before, after, above or below the telephone number unless it is entered elsewhere on the shipping paper in a prominent manner.



Additional Requirements

(2) Emergency Response Telephone Number

- ▶ Person answering phone must be knowledgeable of the HM being shipped or has comprehensive emergency response and mitigation information readily available, or
- ▶ Has immediate access to someone who does possess such knowledge.



SHIPPING PAPER DESCRIPTION

172.202 (b)

Basic Description includes ...

Proper shipping
name

Hazard class or
Division No.

UN1090

Waste Acetone

3

PG II

ID No

Packing
Group



Shipping Paper Locations

When the driver is at the vehicle's controls, the shipping paper shall be:

- ▶ (A) Within his/her immediate reach while he is restrained by the lap belt; and
- ▶ (B) either readily visible to a person entering the driver's compartment or in a holder which is mounted to the inside of the door on the driver's side of the vehicle.



Shipping Paper Locations

When the driver is not at the vehicle's controls, the shipping paper shall be:

- ▶ (A) In a holder which is mounted to the inside of the door on the driver's side of the vehicle; or
- ▶ (B) on the drivers seat.



Shipping Paper Location



Hazardous Waste Manifests

- ▶ A Hazardous Waste Manifest can be and most often times is used as the Hazardous Material Shipping Paper.



Hazardous Waste Manifests

- ▶ No person may offer, transport, transfer or deliver a hazardous waste unless EPA Forms 8700-22 and 8700-22A (when necessary) are prepared in accordance with CFR 262.20 and is signed, carried, and given as required of that person by this section.
- ▶ The shipper (generator) shall prepare the manifest in accordance with 40 CFR part 262.



Hazardous Waste Manifests

The original copy of the manifest must be dated by, and bear the handwritten signature of, the person representing:

- ▶ (1) The shipper (generator) of the waste at the time it is offered for transportation, and
- ▶ (2) The initial carrier accepting the waste for transportation.



Hazardous Waste Manifests

A copy of the manifest must be dated by, and bear the handwritten signature of the person representing:

- ▶ (1) Each subsequent carrier accepting the waste for transportation, at the time of acceptance, and
- ▶ (2) The designated facility receiving the waste, upon receipt.



Hazardous Waste Manifests

A copy of the manifest bearing all required dates and signatures must be:

- ▶ (1) Given to a person representing each carrier accepting the waste for transportation,
- ▶ (2) Carried during transportation in the same manner as required by this subchapter for shipping papers



Hazardous Waste Manifests

- ▶ (3) Given to a person representing the designated facility receiving the waste,
- ▶ (4) Returned to the shipper (generator) by the carrier that transported the waste from the United States to a foreign destination with a notation of the date of departure from the United States,



Hazardous Waste Manifests

- ▶ (5) Retained by the shipper (generator) and by the initial and each subsequent carrier for three years from the date the waste was accepted by the initial carrier. Each retained copy must bear all required signatures and dates up to and including those entered by the next person who received the waste.



Markings

Markings



Definition: Bulk Package

- ▶ A maximum capacity greater than 119 gallons as a receptacle for a liquid;
- ▶ A maximum net mass greater than 882 pounds and a maximum capacity greater than 119 gallons as a receptacle for a solid;
- ▶ A water capacity greater than 1000 pounds as a receptacle for a gas as defined



Definition: Non-Bulk Package

- ▶ A maximum capacity of 119 gallons or less as a receptacle for a liquid
- ▶ A maximum net mass of 882 pounds or less and a maximum capacity of 119 gallons or less as a receptacle for a solid
- ▶ A water capacity of 1000 pounds or less as a receptacle for a gas.



NON-BULK PACKAGES



Iowa Department of Transportation
Office of Motor Vehicle enforcement



Marking Requirements (Non-Bulk)

Proper shipping name and identification number.

- ▶ Each person who offers a hazardous material for transportation in a non-bulk packaging must mark the package with the proper shipping name and identification number for the material as shown in the § 172.101 Hazardous Materials Table.



Marking Requirements (Non-Bulk)

Proper shipping name and identification number.

- ▶ The proper shipping name for a hazardous waste (as defined in [§171.8](#) of this subchapter) is not required to include the word “waste” if the package bears the EPA marking prescribed by 40 CFR 262.32.



Marking Requirements (Non-Bulk)

Special Permit Packages.

The outside of each package authorized by a special permit must be plainly and durably marked “DOT-SP” followed by the special permit number assigned.



Marking Requirements (Non-Bulk)

Consignee's or Consignor's Name.

Each person who offers for transportation a hazardous material in a non-bulk package shall mark that package with the name and address of the consignor or consignee except when the package is:

- ▶ Transported by highway only and will not be transferred from one motor carrier to another; or
- ▶ Part of a carload lot, truckload lot or freight container load, and the entire contents of the rail car, truck or freight container are shipped from one consignor to one consignee.

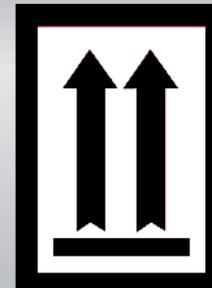


Marking Requirements (Non-Bulk)

Liquid Hazardous Materials.

Each non-bulk combination package having inner packages containing liquid hazardous materials must be

- ▶ Packed with closures upward, and



- ▶ Be legibly marked with package orientation markings on two opposite vertical sides of the package with the arrows pointing in the correct upright direction.



BULK PACKAGES



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Office of Motor Vehicle enforcement



Marking Requirements (Bulk)

Identification numbers.

No person may offer for transportation or transport a hazardous material in a bulk packaging unless the packaging is marked with the identification number specified for the material in the [§ 172.101](#) table

- ▶ On each side and each end, if the packaging has a capacity of 1,000 gallons or more;
- ▶ On two opposing sides, if the packaging has a capacity of less than 1,000 gallons;



Displaying ID#'s

1075

2212



Marking Requirements (Bulk)

Special Permit Packages.

Like Non-Bulk packages, each Bulk package shipped/transported under the terms of a special permit must be plainly and durably marked “DOT-SP” followed by the special permit number assigned.



General Marking Requirements

- ▶ Markings must be durable, in English and printed on or affixed to the surface of a package or on a label, tag, or sign.
- ▶ Must be displayed on a background of sharply contrasting color;
- ▶ Must be unobscured by labels or attachments; and
- ▶ Must be located away from any other marking (such as advertising) that could substantially reduce its effectiveness.



PLACARDING

PLACARDING



PLACARDING



Placarding

- ▶ Placard any quantity of a table 1 material.
- ▶ Placard 1,001 lb. or more of a table 2 material or a combination of table 2 materials that exceed 1,001 lb.



TABLE 1

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard design section reference (§)
1.1	EXPLOSIVES 1.1	172.522
1.2	EXPLOSIVES 1.2	172.522
1.3	EXPLOSIVES 1.3	172.522
2.3	POISON GAS	172.540
4.3	DANGEROUS WHEN WET	172.548
5.2 (Organic peroxide, Type B, liquid or solid, temperature controlled)	ORGANIC PEROXIDE	172.552
6.1 (material poisonous by inhalation (see § 171.8 of this subchapter)	POISON INHALATION HAZARD	172.555
7 (Radioactive Yellow III label only)	RADIOACTIVE ¹	172.556



TABLE 2

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard design section reference (§)
1.4	EXPLOSIVES 1.4	<u>172.523</u>
1.5	EXPLOSIVES 1.5	<u>172.524</u>
1.6	EXPLOSIVES 1.6	<u>172.525</u>
2.1	FLAMMABLE GAS	<u>172.532</u>
2.2	NON-FLAMMABLE GAS	<u>172.528</u>
3	FLAMMABLE	<u>172.542</u>
Combustible liquid	COMBUSTIBLE	<u>172.544</u>
4.1	FLAMMABLE SOLID	<u>172.546</u>
4.2	SPONTANEOUSLY COMBUSTIBLE	<u>172.547</u>
5.1	OXIDIZER	<u>172.550</u>
5.2 (Other than organic peroxide, Type B, liquid or solid, temperature controlled)	ORGANIC PEROXIDE	<u>172.552</u>
6.1 (other than material poisonous by inhalation)	POISON	<u>172.554</u>
6.2	(None)	
8	CORROSIVE	<u>172.558</u>
9	Class 9 (see § <u>172.504(f)(9)</u>)	<u>172.560</u>
ORM-D	(None)	



Dangerous placard.

- ▶ A freight container, unit load device, transport vehicle, or rail car which contains non-bulk packages with two or more categories of hazardous materials that require different placards specified in Table 2 may be placarded with a Dangerous placard instead of the separate placarding specified for each of the materials in Table 2



- ▶ 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 on a freight container, unit load device, transport vehicle, or rail car, the placard specified in Table 2 for that category must be applied.





Prohibited Placarding

Any sign, advertisement, slogan (such as "Drive Safely"), or device that, by its color, design, shape or content, could be confused with any placard prescribed in this subpart.





7000 | 21



Visibility and display of placards 172.516

- ▶ Each placard on a motor vehicle must be clearly visible from the direction it faces, except from the direction of another transport vehicle to which the motor vehicle is coupled. This requirement may be met by the placards displayed on the freight containers or portable tanks loaded on a motor vehicle



Each placard on a transport vehicle, bulk packaging, freight container or aircraft unit load device must–

- ▶ Be securely attached or affixed thereto or placed in a holder thereon.
- ▶ Be located clear of appurtenances and devices such as ladders, pipes, doors, and tarpaulins
- ▶ So far as practicable, be located so that dirt or water is not directed to it from the wheels of the transport vehicle



- ▶ Be located away from any marking (such as advertising) that could substantially reduce its effectiveness, and in any case at least 3 inches away from such marking;
- ▶ Have the words or identification number (when authorized) printed on it displayed horizontally, reading from left to right;



- ▶ Be maintained by the carrier in a condition so that the format, legibility, color, and visibility of the placard will not be substantially reduced due to damage, deterioration, or obscurement by dirt or other matter;



Labels

Labels



Labels

- ▶ Labels Are Small Versions Of Placards



- ▶ Labels Are Generally On Smaller Packages
- ▶ Placards Are Generally On Large Tanks And Vehicles

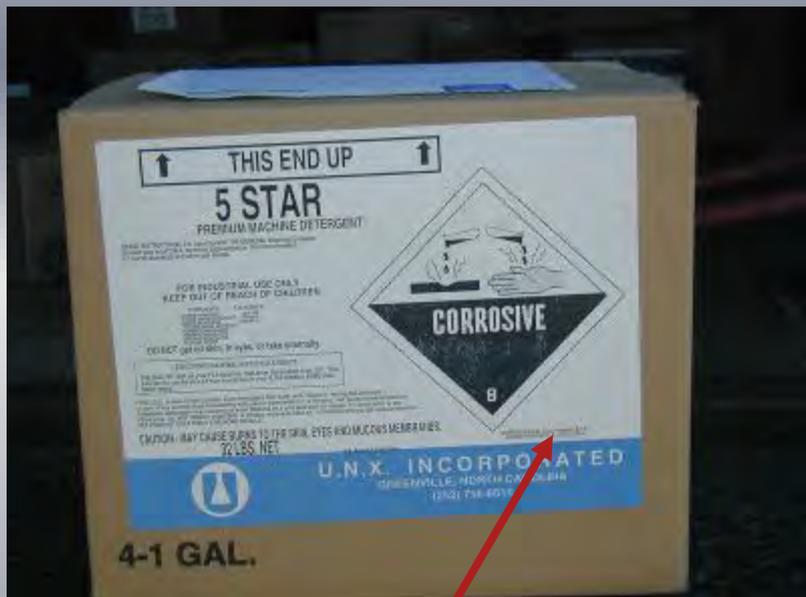


172.406 Placement of labels

- ▶ Be printed on or affixed to a surface (other than the bottom) of the package or containment device containing the hazardous material; and
- ▶ Be located on the same surface of the package and near the proper shipping name marking, if the package dimensions are adequate



Proper Label Placement



Correct
Near PSN



Incorrect
Not near PSN



Packaging

Бүсэгдэл



Typical Container Shapes & Sizes

- ▶ Cylinders
- ▶ Cargo Tanks
- ▶ Totes
- ▶ Fiberboard Boxes
- ▶ Storage Containers



DOT Specification Packages

- ▶ Hazardous Materials must be packaged in US DOT authorized packaging as determined by column 8 of the Hazardous Material Table (Column 7 for IBC's)
- ▶ Example: 1A1 or 1A2 Steel Drums, 4G Fiberboard Boxes, DOT 3AL Cylinders, DOT 406/407/412/331 Cargo Tanks, IM 101/102 Portable Tanks, 31A/31B Metal IBC's, etc.



Packages



Load Securement

Load Securement



Load Securement

- ▶ (a) *Packages secured in a motor vehicle.* Any package containing any hazardous material, not permanently attached to a motor vehicle, must be secured against shifting, including relative motion between packages, within the vehicle on which it is being transported, under conditions normally incident to transportation. Packages having valves or other fittings must be loaded in a manner to minimize the likelihood of damage during transportation.



Load Securement–Cargo Tanks

- ▶ 1) All manhole closures are closed and secured; and
- ▶ (2) All valves and other closures in liquid discharge systems are closed and free of leaks.



FEAR!

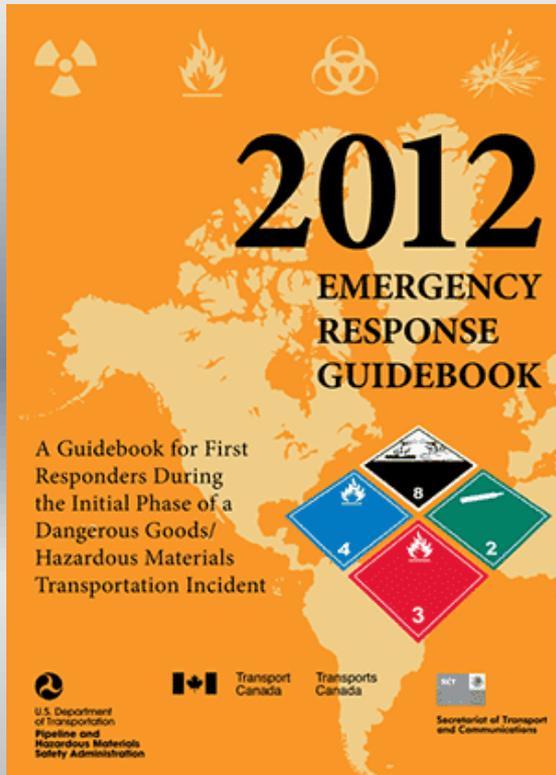
FEAR!



Emergency Response Information

- MSDS
- Emergency response guide book
- Other document containing the required information
- Maintained in the same manner as the shipping papers





Dakota Gasification Company
P.O. Box 3149, Bismarck, North Dakota, 58103

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
PRODUCT IDENTIFIER: **DAKOTA 85 - Ammonia Gas**
GENERAL USE: **Industrial grade ammonia, fertilizer, for protein, compound, fertilizer, herbicide, seed dressing.**
PRODUCT DESCRIPTION: **Ammonia Gas in liquid or gaseous**

MANUFACTURER: **Dakota Gasification Company**
P.O. Box 3149
Bismarck, North Dakota 58103
(701) 435-8807

EMERGENCY TELEPHONE NUMBERS
State: **North Dakota (701) 672-4880**
Chemical: **(800) 424-4662**

2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENTS	WT. %	CAS NUMBER
Ammonia Gas	85.18%	7782-42-8

3. HAZARD IDENTIFICATION / EMERGENCY OVERVIEW

Division of Emergency: **Ammonia Gas**

General Hazard: **Ammonia Gas is extremely flammable and toxic. It is a colorless gas with a strong odor. It is heavier than air and can travel along the ground. It is a severe eye irritant and can cause respiratory irritation. It is also a severe skin irritant and can cause chemical burns. It is also a severe respiratory irritant and can cause asthma and other respiratory conditions. It is also a severe environmental irritant and can cause damage to aquatic life.**

Physical State: **Gas**

Odor: **Strong, pungent, irritating**

Color: **Colorless**

Boiling Point: **-33.34°C (-27.01°F)**

Melting Point: **-77.7°C (-107.86°F)**

Density: **0.6818 g/cm³ (0.0251 lb/in³)**

Flash Point: **-17°C (-1°F)**

Autoignition Temperature: **651°C (1205°F)**

Decomposition Temperature: **1927°C (3493°F)**

Stability: **Stable under normal conditions. May become unstable at high temperatures and pressures.**

Reactivity: **Highly reactive with oxidizing agents. May react with strong acids and bases.**

Corrosivity: **Corrosive to metals. May cause severe skin irritation and chemical burns.**

Environmental: **Ammonia Gas is highly soluble in water and can form ammonium hydroxide. It is highly toxic to aquatic life.**

Regulatory Information: **Ammonia Gas is listed as a hazardous material under DOT regulations. It is also listed as a hazardous air pollutant under EPA regulations.**

Product Name: **AMMONIA GAS**

Revision Date: **2/2008**

Page 1 of 1

OR

Any other form that has the requirements information



HAZ MAT REGISTRATION

HAZ MAT REGISTRATION



Who Needs Hazardous Materials Registration?

- ▶ A quantity of hazardous material that requires placarding or
- ▶ A shipment of a quantity of hazardous materials in a bulk packaging having a capacity equal to or greater than 3,500 gallons for liquids





**HAZARDOUS MATERIALS
CERTIFICATE OF REGISTRATION**

Registrant: W.E. Haul Trucking; 1426 Holland Road; Suffolk, VA 23439-1080

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of Section 106(c)(1) of the Hazardous Materials Transportation Act, 49 App. U.S.C. 1801, et. seq. It is unlawful to alter or falsify this document.

Reg. No: 061593 001 005B Issued: 06/17/YY Expires: 06/30/YY

Recordkeeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

- (1) A copy of the registration statement filed with RSPA; and
- (2) This Certificate of Registration.

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U.S. Department of Transportation upon request.

Each motor carrier (private or for-hire) subject to the registration requirement must keep a copy of that carrier's current Certificate of Registration or another document bearing the registration number identified as "U.S. DOT Hazmat Reg. No." in each truck and truck tractor (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202) 366-4109.



How should it be displayed?

- ▶ Motor carriers subject to the requirements of this subpart must carry a copy of its current Certificate of Registration issued by PHMSA or
- ▶ Another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." on board each truck and truck tractor used to transport hazardous materials subject to the requirements of this subpart.
- ▶ 107.620(b)



QUESTION'S



MVE Information Line

1-800-925-6469



www.iamvvd.com

