

# ILLINOIS COMMERCE COMMISSION



## 2009 ANNUAL REPORT ON ACCIDENTS/INCIDENTS Involving Hazardous Materials on Railroads in Illinois



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## **1. INTRODUCTION**

This report has been prepared by the staff of the Illinois Commerce Commission's Railroad Safety Section in accordance with the provisions of 625 ILCS 5/18c-1204. The law directs the Commission to "*prepare and distribute to the General Assembly ... a report on railway accidents in Illinois which involve hazardous materials.*" The law also provides that "*the report shall include the location, substance involved, amounts involved, and the suspected reason for each accident, as well as the rail line and point of origin of the hazardous material involved in each accident.*"

Additionally, this report contains the following related information:

- Details regarding events where hazardous material was involved but no release occurred;
- An overview of Commission activities relative to the transportation of hazardous materials by rail within the State; and
- Review of the transportation of nuclear and radioactive materials by rail within the State.

## **2. BACKGROUND**

Illinois is a key hub in the nation's transportation system. With a railroad network of approximately 7,300 miles, Illinois' rail system is the country's second largest. The Chicago and St. Louis terminal switching districts are the two key points of interchange between eastern, western, northern, and southern rail systems and handle over 40,000 rail cars on a typical weekday.

According to the Association of American Railroads (AAR), approximately six percent of all rail traffic involves the movement of hazardous materials. In 2007 (latest year for which data is available), railroads in Illinois handled 513.7 million tons of total freight and 11.7 million carloads of freight which is first in the nation for carloads carried and third for total rail tonnage handled. Of this total, railroads in Illinois handled approximately 30.8 million tons (6 percent) of hazardous materials.

The U.S. Department of Transportation (USDOT) classifies approximately 3,500 substances as hazardous. Many of these substances, ranging from mild irritants to poisonous and radioactive materials, are routinely transported by rail through populous regions of the country and can have the potential to severely impact the environment and public health, if inadvertently released into the environment. Individual shipments can range in quantity from packages as small as a pint that may be carried inside a highway trailer or container on a flat car, to as much as 42,000 liquid gallons carried in a tank car.

The AAR's Bureau of Explosives has identified approximately 125 hazardous materials comprising 88 percent of all hazardous materials transported by railroad.<sup>1</sup>

Under federal law (49 CFR, Part 212) individual states are authorized to participate in the Railroad Hazardous Material Inspection Program administered by the USDOT. The program is under the supervision of the Federal Railroad Administration (FRA). FRA certifies state inspectors so that they may have the same legal and administrative authority as federal inspectors in assuring the safe transport of hazardous material through inspection and investigation. The Commission employs two full-time federally certified inspectors responsible for all of Illinois.

Commission Hazardous Material ("HM") inspectors focus the majority of their effort in the field conducting inspections at railroad yards and the industrial facilities of shippers and consignees of hazardous materials. The inspectors are also responsible for maintaining inspection data, responding to complaints from rail employees and the public, and for providing information concerning the transport of hazardous material within Illinois to other state, regional and local agencies.

In 2009, Commission HM inspectors inspected 16,011 rail cars. Since 1981, when Commission HM inspectors found violations in 12 percent of all inspections, compliance has improved to the point that inspectors found violations in only 1.8 percent (1.8%) of all inspections in 2009.

The large increase in compliance observed since 1981, is due in part to Commission initiated conferences with rail carriers and shippers to educate and inform them of the complex and continually evolving regulations. The educational meetings and informational sessions are followed up with inspections by Commission staff to ensure that the lessons learned from the education and information sessions, have been implemented by the shipper or rail carrier in its day-to-day activities.

### **3. COMMISSION HAZARDOUS MATERIALS SAFETY PROGRAM**

The Commission's Hazardous Materials Safety Program is comprised of four main components:

- Inspection of railroad equipment and shipper/consignee facilities;
- The provision of technical assistance to shippers/consignees and rail carriers;
- The inspection and transport of nuclear materials; and
- Education and outreach activities to shippers/consignees, rail carriers, emergency responders and the general public.

<sup>1</sup>Note: Attachment 6 provides a list of the most commonly transported materials and the hazard class of each commodity.

### **3.1 Inspection of Rail Equipment and Shipper/Consignee Facilities**

Four types of inspections are made by Commission inspectors: stationary railroad equipment such as tank cars at a yard or plant, railroad equipment in transit in the consist of a through or yard train known as a “roll-by” inspection; analysis of shipping papers and related documentation; and inspection of facilities that either ship or receive hazardous commodities.

#### **3.1.1 Railroad Equipment**

Hazardous material equipment inspections are performed on a stationary hazardous material rail car. Normally, this type of inspection occurs within a railroad yard or at the loading or unloading terminal within a shipper’s facility. The inspection assures that the cars are affixed with the required placards identifying the hazardous commodities being transported. Attachment 1 provides examples of the various placards and the information they provide, which is of critical importance to emergency response personnel. Commission HM inspectors verify that the rail car’s markings, stenciling, tank and valve test dates, and mechanical safety features, are in compliance with federal regulations.

#### **3.1.2 Roll-By**

A roll-by inspection involves monitoring an entire train while in motion. The location of loaded hazardous material cars, as well as those cars that have been unloaded, but that still contain residue of the commodity transported, are observed in relation to the locomotives, occupied cabooses, other hazardous material cars, and certain other types of cargo cars. Specific types of hazardous material cars are required to be spotted at particular locations within a train. Should Commission inspectors determine that cars are not correctly located within the train’s consist, the inspector may require the rail carrier to stop the train and order the cars to be correctly placed.

Proper placement of hazardous material cars within a train’s consist is of great importance to the train crew who could be severely injured if a derailment were to occur. For example, hazardous material cars containing liquefied petroleum gas (LPG), as well as other highly flammable commodities, may not be positioned next to the locomotive.

#### **3.1.3 Documentation**

Documentation inspections involve examining waybills and bills of lading to verify that the documents were completed correctly. Such inspections normally occur at the office of the shipper or consignee, or at the yard office of the rail carrier. The bill of lading is a document providing a description of the type and quantity of commodities being transported. Attachment 5 provides a sample bill of lading.

The bill of lading must include a 24-hour emergency response telephone number clearly visible, in order to facilitate the appropriate response by emergency providers in case of an accident or derailment. Inspectors examine the bill of lading to verify that the correct shipping name, hazard class, 4-digit commodity identification number, and weight are all present and correctly stated.

Emergency responders rely on the provision of this shipping information in the case of a spill or other type of incident concerning the shipment. Depending upon the particular substance being transported, incorrect or incomplete information can result in injury or death to responders, rail employees and the public in the event of a derailment that could cause an inadvertent release.

#### 3.1.4 Shipping Facilities

Shipping facility inspections are conducted at privately owned facilities. The purpose of the inspection is to assure that the requirements of Title 49 of the United States Code of Federal Regulations (CFR) are being complied with. All regulations of 49 CFR must be complied with in order to permit the continued ability of the shipper or consignee to receive or ship hazardous materials.

### **3.2 Technical Assistance Program to Shippers, Consignees and Emergency Responders**

Commission HM inspectors respond to railroad related collisions/incidents involving hazardous material. The Commission's role is to provide technical assistance to emergency response personnel. The assistance provided is that of determining if the documentation and information provided by the rail carrier or shipper to the emergency responder, is correct and adequate to permit the responder to safely handle the incident. Commission hazardous materials inspectors will also advise the emergency response team as to proper mitigation and clean up procedures and requirements. Commission hazardous materials inspectors assist in investigation of the incident in order to identify the cause, as well as any violations that may have contributed either directly, or indirectly in causing the incident. Commission hazardous materials inspectors are on-call 24-hours a day to respond to any incident.

### **3.3 Escort of Nuclear Material in Illinois**

The movement of nuclear material in or through the State of Illinois by rail occurs infrequently; however, should spent nuclear fuel materials begin to move to a proposed national repository, more frequent shipments are expected. The current protocol for the shipment of nuclear material requires that the train be stopped and inspected prior to entering Illinois. Nuclear material shipments are escorted by Commission HM inspectors, as well as Commission track inspectors who verify that the rail line to be traveled is in suitable condition.

Radioactive material is probably the most controversial and least understood class of hazardous material being transported by rail in Illinois today. To date, there have been no incidents involving the transport of radioactive material, however widespread concern on the part of the public due to safety and security issues, warrant the careful planning and inspection of all radioactive shipments traveling over the Illinois rail network.

### 3.4 Education and Outreach Activities

According to 625 ILCS 5/18c-7404, Commission inspectors offer training for local law enforcement and emergency response personnel. The training is intended to acquaint participants with railroad car marking and placarding requirements and emergency response manuals and guide books. Fire departments are provided with instruction and training concerning tank car structure and damage assessment. Commission HM inspectors also make presentations on the interpretation and application of federal and state hazardous materials regulations to railroad company personnel. Since 1990, ninety educational or training presentations on hazardous material safety have been made to approximately 2,000 persons affiliated with a variety of emergency planning and response teams.

## 4. COMMISSION HAZARDOUS MATERIAL SAFETY PROGRAM ACTIVITY IN 2009

Summary of Inspections Conducted by Commission HM Inspectors: 2002 through 2009.  
(Source: FRA)

Year	Inspections	Units Inspected	Defects Identified	Defects Per Unit
2002	328	7,718	274	0.036
2003	424	9,641	248	0.026
2004	218	13,899	445	0.032
2005	240	14,551	492	0.034
2006	274	16,978	698	0.041
2007	259	16,828	470	0.028
2008	282	17,177	360	0.021
2009	255	16,011	293	0.018
<b>Total</b>	<b>2,280</b>	<b>112,803</b>	<b>3,280</b>	<b>0.029</b>

## 5. SUMMARY

The nature of catastrophic incidents that can occur from hazardous material incidents is cause for prudent exercise of state and federal regulations and the necessity of having staff to assure compliance with all applicable regulations. Commission inspectors routinely discover minor violations and defects, and occasionally major violations or defects that if not corrected, could lead to serious incidents likely to result in loss of life and extensive damage to property.

## 6. DATA DESCRIBING ACCIDENTS AND/OR INCIDENTS IN ILLINOIS IN 2009

Specific data required by 625 ILCS 5/18c-1204 is shown in tabular form on the following pages. The applicable statutory section states: "The staff shall prepare and distribute to the General Assembly, in April of each year, a report on railway accidents in Illinois which involve hazardous material. The report shall include the location, substance involved, quantity involved, and the suspected reason for each accident. The report shall also reveal the rail line and point of origin of the hazardous material involved in each accident."

The remainder of this report provides three tables and a number of attachments.

**Table A** shows railroad derailments where hazardous material was being transported in the derailed railroad equipment and a hazardous material release occurred.

**Table B** shows railroad derailments where hazardous material was being transported in the train and the railroad equipment derailed, however, there was no release of any hazardous material.

**Table C** shows hazardous material releases from railroad equipment where no derailment was involved.

### Summary of Hazardous Material Related Incidents: 2002 - 2009

Type of Incident	2002	2003	2004	2005	2006	2007	2008	2009
A. Hazardous Materials Physically Involved in Derailment and Hazardous Materials Release Occurred	13	4	16	11	6	7	7	5
B. Hazardous Materials Physically Involved in Derailment Where No Hazardous Materials Release Occurred	6	7	4	8	12	10	4	5
C. Hazardous Materials Released From Rail Cars Where No Derailment Occurred	73	73	57	53	95	81	65	25
<b>Total</b>	<b>92</b>	<b>84</b>	<b>77</b>	<b>72</b>	<b>113</b>	<b>98</b>	<b>73</b>	<b>35</b>

Tables A, B, and C indicate the nearest identifiable location (City and County) where each accident/incident occurred. Information for all three tables was obtained from reports filed by the railroad with the Commission, as well as from the USDOT's Research and Special Programs Administration.

Three categories of information not specifically asked for by the General Assembly have been added to make the report more useful. The first category is "Amount Released." This distinction is important in order to differentiate the "Amount Involved" required by the General Assembly, from the more significant quantity of "Amount Released." The "Amount Involved" is simply the quantity of commodity that was being transported; the "Amount Released" into the environment by accident is far more critical.

The second category added is the "Type of Equipment" involved. The final additional category is the date of the incident. In the tables, the railroad companies are identified by their FRA reporting marks; for example NS is the Norfolk Southern Railway. A listing of the complete names is provided in Table D.

Table A. Hazardous Materials Physically Involved in a Derailment and a Hazardous Materials Release Occurred.

City	County	Railroad Involved	Substance Involved	Point of Origin	Suspected Reason for Incident	Amount Involved (Gallons)	Amount Released (Gallons)	Type of Equipment	Date
Carlville	Macoupin	UP	Diesel Fuel	Yard	Broken Rail	4,500	2,000	Locomotive	1/15/2009
Galesburg	Knox	BNSF	Diesel Fuel	Unknown	Center Seal Broken	23,913	200	Tank Car	2/2/2009
Perryville	Winnebago	CN	Ethanol	Oshkosh, WI	Derailment	28,500	25,000	Tank Car	6/19/2009
Granite City	Madison	NS	Propylene	Chicago, IL	Gauge Restraint Failure	30,400	Vapor	Tank Car	9/21/2009
Melrose Park	Cook	UP	Fuel Oil	Proviso Yard	Derailment	300	10 to 15	Locomotive	10/1/2009

Table B. Hazardous Materials Physically Involved in a Derailment Where No Hazardous Materials Release Occurred.

City	County	Railroad Involved	Substance Involved	Point of Origin	Suspected Reason for Incident	Amount Involved (Gallons)	Amount Released (Gallons)	Type of Equipment	Date
Grant Park	Kankakee	CSX	Denatured Alcohol NOS	Jacksonville, FL	Burnt Journal	30,000	None	Tank Car	1/18/2009
Benton	Franklin	UP	Liquified Petroleum Gas	Odessa, TX	Broken Wheel	34,000	None	Tank Car	2/9/2009
Cicero	Cook	BNSF	Alcohol NOS	Unknown	Unknown	32,000	None	Tank Car	5/31/2009
Melrose Park	Cook	UP	Liquified Petroleum Gas	Baytown, TX	Cross Draw Bars	33,500	None	Tank Car	9/9/2009
Carbondale	Jackson	CN	Ethyl Alcohol	Unknown	Suspect Brake Problem	29,400	None	Tank Car	12/13/2009

Table C. Hazardous Materials Released From Rail Cars Where No Derailment Occurred.

City	County	Railroad Involved	Substance Involved	Point of Origin	Suspected Reason for Incident	Amount Involved (Gallons)	Amount Released (Gallons)	Type of Equipment	Date
Elburn	Kane	UP	Diesel Fuel	Unknown	Fuel Line	4,000	2	Locomotive	1/27/2009
East St. Louis	St. Clair	UP	Diesel Fuel	East St. Louis, IL	Mechanical Malfunction	4,500	1 to 2	Locomotive	1/31/2009
East St. Louis	St. Clair	UP	Diesel Fuel	Yard	Defective Fuel Injector	4,300	5	Locomotive	2/3/2009
Danville	Vermilion	CSX	Diesel Fuel	Danville, IL	Mechanical Malfunction	3,600	30	Locomotive	2/17/2009
Granite City	Madison	NS	Lube Oil	Granite City, IL	Broken Oil Line	250	250	Locomotive	2/27/2009
Chicago	Cook	NS	Diesel Fuel	Chicago, IL	Defective Unit	200	30	Tank Car	3/2/2009
Manilus	Bureau	UP	Diesel Fuel	Kewanee, IL	Faulty Fuel Line	4,000	300	Locomotive	3/21/2009
East St. Louis	St. Clair	UP	Gasoline	East St. Louis, IL	Vapor Release	31,800	Vapor	Tank Car	3/23/2009
Franklin Park	Cook	CP	Diesel Fuel	Yard	Broken Sight Glass	28,900	5	Tank Car	4/7/2009
Chicago	Cook	CN	Lube Oil	Chicago, IL	Cracked Crankcase	200	50	Locomotive	4/16/2009
East St. Louis	St. Clair	UP	Diesel Fuel	East St. Louis, IL	Leaking Fuel Line	300	5	Trailer on Flat Car	4/18/2009
Northlake	Cook	UP	Diesel Fuel	Yard	Unknown	4,000	35	Locomotive	4/19/2009
Tilton	Vermilion	NS	Lubrication Oil	Tilton, IL	Crankcase Explosion	50	10	Locomotive	4/23/2009
Chicago	Cook	NS	Diesel Fuel	Yard	Punctured Fuel Tank	300	12	Trailer on Flat Car	5/5/2009
Granite City	Madison	NS	Fluorosillicic Acid	Chicago, IL	Tank Shell Compromised	20,455	1	Tank Car	5/13/2009
Elmhurst	DuPage	UP	Diesel Fuel	Yard	Broken Fuel Line	4,000	1	Locomotive	5/15/2009
Marengo	McHenry	UP	Diesel Fuel	Yard	Puncture from Debris on Track	1,900	1,000	Locomotive	5/19/2009
East St. Louis	St. Clair	UP	Condensed Natural Gas	Baytown, TX	Pop of Valve Release	29,000	Vapor	Tank Car	6/16/2009
Northlake	Cook	UP	Hydrochloric Acid	Chicago, IL	Loose Bolts on Vapor Flange	18,500	< 1	Tank Car	8/9/2009
Chicago	Cook	UP	Diesel Fuel	Canal Street Yard	Struck a Derail Device	4,000	300	Locomotive	10/22/2009
Joliet	Will	BNSF	Diesel Fuel	Yard	Unknown	300	60	Trailer on Flat Car	10/30/2009
Kankakee	Kankakee	NS	Diesel Fuel	Yard	Human Error	2,500	70	Locomotive	11/30/2009
Bellwood	Cook	UP	Diesel Fuel	Proviso Yard	Unknown	400	400	Trailer on Flat Car	12/11/2009
Chicago	Cook	BNSF	Diesel Fuel	Corwith Yard	Unknown	4,000	1,300	Locomotive	12/12/2009
East St. Louis	St. Clair	UP	Diesel Fuel	Yard	Human Error	4,200	300	Locomotive	12/15/2009

## **Table D. RAILROAD COMPANIES CITED IN THE PROCEEDING TABLES**

ALS	Alton and Southern Railroad Company
BNSF	The Burlington Northern and Santa Fe Railway Company
BRC	Belt Railroad Company of Chicago
CN	Canadian National Railroad Company
CP	Canadian Pacific
CSX	CSX Transportation, Inc.
EJE	Elgin, Joliet & Eastern Railway Co.
IHB	Indiana Harbor Belt Railroad Co.
KBSR	Kankakee, Beaverville and Southern Railroad Company
KCS	Kansas City Southern Railway Company
NS	Norfolk Southern Railway Company
TRRA	Terminal Railroad Association of St. Louis
UP	Union Pacific Railroad Company

### **LIST OF ATTACHMENTS**

Attachment 1: Recognizing and Identifying Hazardous Materials

Attachment 2: Sample Waybill

Attachment 3: Sample Consist

Attachment 4: Emergency Response Information

Attachment 5: Sample Bill of Lading

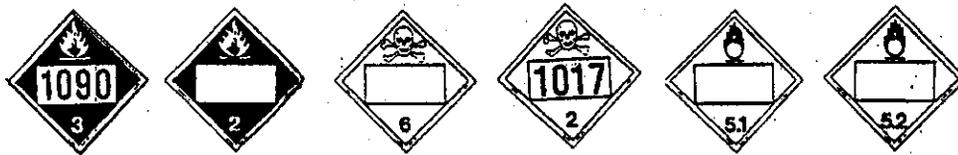
Attachment 6: Top 125 Hazardous Commodity Movements by Tank Car Origination

**RECOGNIZING AND IDENTIFYING HAZARDOUS MATERIALS****PLACARD AND LABEL NOTES**

Placards are diamond shaped — 10¼ inches square. The placard provides recognition information in a number of ways:

1. the colored background;
2. the symbol at the top;
3. The United Nations hazard class number at the bottom; and
4. the hazard class wording or the identification number in the center.
  - a. Color:
    - orange indicates explosive;
    - red indicates flammable;
    - green indicates nonflammable;
    - yellow indicates oxidizing material;
    - white indicates poisonous material;
    - white with vertical red stripes indicates flammable solid;
    - yellow over white indicates radioactive material; and
    - white over black indicates corrosive material.
  - b. Symbols:
    - the bursting ball symbol indicates explosive;
    - the flame symbol indicates flammable;
    - the slash W (W) indicates dangerous when wet;
    - the skull and crossbones indicates poisonous material;
    - the circle with the flame indicates oxidizing material;
    - the cylinder indicates nonflammable gas;
    - the propeller indicates radioactive;
    - the test tube/hand/metal symbol indicates corrosive; and
    - the word Empty indicates that the product has been removed, but a harmful residue may still be present.
  - c. United Nations Hazard Class Numbers:
    - 1 — Explosives
    - 2 — Gases
    - 3 — Flammable Liquids
    - 4 — Flammable Solids
    - 5 — Oxidizing Substances
    - 6 — Poisonous and Infectious Substances
    - 7 — Radioactive Substances
    - 8 — Corrosive Substances
    - 9 — Miscellaneous Dangerous Substances
  - d. Hazard Class or Identification Number

Below are some examples of placards.



SAMPLE WAYBILL

Attachment 2  
Page 1 of 2

\*\*\*\*\*  
\*  
\*\*\*\*\*

RTMX 21065 T/C

#123456

03 06 01

St. Louis

MO.

1212 St. Louis, MO.  
12 S. Street  
John Doe Inc.

John Doe Inc.  
Chicago, IL.

1/TC

Residue: Last Contained  
Acetone, 3, UN 1090, II, RQ (Acetone)

STCC 4908108

CHEMTREC EMERGENCY CONTACT 1-800-424-9300

SAMPLE WAYBILL

Attachment 2  
Page 2 of 2

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GAPX 6075 T/C

#123457

03 06 01

St. Louis MO.

1212 St. Louis, MO.  
12 S. Street  
John Doe Inc.

John Doe Inc.  
Chicago, IL.

1/TC Phenol, Molten, 6.1, UN 2312, II,RQ (Phenol) 20,000 GAL.

STCC 4921220

CHEMTREC EMERGENCY CONTACT 1-800-424-9300

SAMPLE CONSIST

ATTACHMENT 3

TRAIN/JOB	CONDUCTOR			
NAME	CATAGORY—SECONDARY MANIFEST TYPE—THRU			
ENGINE - IDENT	HORSEPOWER	LENGTH	WEIGHT	STATUS
6142	3000	69	200E	
1001	3000	74	200E	
ENG 1005	3000	74	200E	
TOTAL	9000 HP	217 FEET	600 TONS	

TRAIN/JOB	SEQ	EQPMNT	ID	KND	GWT	COMDTY	DESTN	ZTS/CARR	NXBLK	CITY/STATE	CONSIGNEE
BLOCK --											
1	BJOX	278	LC4T	131	CORN	7MT018			214H	MEMPHIS TN	
										NOTIFY SHIPPER IF DELAYED	IF BAD ORDERED NOTIFY SHIPPER
2	BJOX	109	LC4T	131	CORN	7MT018			214H	MEMPHIS TN	
										NOTIFY SHIPPER IF DELAYED	IF BAD ORDERED NOTIFY SHIPPER
3	BJOX	110	LC4T	131	CORN	7MT018			214H	MEMPHIS TN	
										NOTIFY SHIPPER IF DELAYED	IF BAD ORDERED NOTIFY SHIPPER
4	CRDX	7227	LC4T	131	CORN	7MT018			214H	MEMPHIS TN	
										NOTIFY SHIPPER IF DELAYED	IF BAD ORDERED NOTIFY SHIPPER
5	RTMX	21065	ET29	35		12ZA003	CR			CHICAGO IL	
										R50 SPEED RESTRICTED CAR	

*****	1/TK
* * *	RESIDUE: LAST CONTAINED
*****	ACETONE
	3
EMERGENCY CONTACT:	UN 1090
1-800-424-9300	II
	RQ (ACETONE)
	HAZMAT STCC = 4908105
6 GAPX 6075 LT19 36 POIS B 12ZA003 00 BRC CHICAGO IL	
	R50 SPEED RESTRICTED CAR

*****	1/TC
* * *	PHENOL, MOLTEN
*****	6.1
	UN 2312
EMERGENCY CONTACT:	II
1-800-424-9300	RQ (PHENOL)
	HAZMAT STCC = 4921220

EMERGENCY RESPONSE INFORMATION

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

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

**HEALTH**

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- **CALL** Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

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

**EVACUATION**

**Large Spill**

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

**Fire**

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

## EMERGENCY RESPONSE

### FIRE

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

#### Small Fires

- Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.

#### Large Fires

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

#### Fire Involving Tanks or Car/Trailer Loads

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

### SPILL OR LEAK

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

#### Large Spills

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

### FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved; and take precautions to protect themselves.

## POTENTIAL HAZARDS

- **TOXIC:** inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

## FIRE OR EXPLOSION

- Combustible material: may burn but does not ignite readily.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors, and sewers explosion hazards.
- Those substances designated with a "P" may polymerize explosively when heated or involved in a fire.
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated.
- Runoff may pollute waterways.
- Substance may be transported in a molten form.

## PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate enclosed areas.

## PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

## EVACUATION

### Spill

- See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

### Fire

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

## EMERGENCY RESPONSE

### FIRE

#### Small Fires

- Dry chemical, CO<sub>2</sub> or water spray.

#### Large Fires

- Dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray.
- Move containers from fire area if you can do it without risk.
- Dike fire control water for later disposal; do not scatter the material.

#### Fire Involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Do not get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

### SPILL/LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- DO NOT GET WATER INSIDE CONTAINERS.

### FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

\*\*\*\*\* STRAIGHT BILL OF LADING — SHORT FORM — Original — Not Negotiable Attachment 5  
 \* \* \* \* \* ( SAMPLE ) Company Page 1 of 2

RECEIVED, subject to the classifications and lawfully Blue tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.									
CUST. NUMBER 5	S.D. NUMBER 7	CAR OR TRAILER INITIAL AND NUMBER RTMX 21065	DATE SHIPPED 8	MC DD EE	ROUTE CODE 5	SHP. PLT. 1	the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Freight Bill of Lading set forth (1) in Official, Southern, Western and Alaska Freight Classifications in effect on the date hereof, if this is a rail-carrier shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.		
NET WEIGHT 8	GROSS WEIGHT 8	NO. OF UNIT 4	UNIT CODE 3	PROD. CODE 3	PROD. FLT. 2				
CONSIGNEE John Doe, Inc.				DESTINATION Chicago, IL		STATE OF Cook		COUNTY OF Cook	
FROM Permanent Postoffice Address of Shipper John Doe, Inc. St. Louis, MO				AT					
ROUTE ABC Railroad				DELIVERING CARRIER ABC		AGENT ABC			
						PER			
NO. PKGS.	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS					WEIGHT (Sub. to Corr.)	RATE		
1 T/C	Residue: Last Contained Acetone 3 UN 1090 II RQ ( Acetone )  EMERGENCY CONTACT 1-800-424-9300  HAZ MAT STCC = 4908105					Residue			
This shipment is correctly described: <b>CORRECT WEIGHT IS</b> LBS. subject to verification by the Eastern, Southern or Western Weighing and Inspection Bureau, whichever applicable, 18843 John Doe, Inc. SHIPPER				<b>THE TOTAL WEIGHT OF THE PALLETS USED ON THE SHIPMENT IS SHOWN ABOVE.</b>		<b>TRANSPORTATION FREE PER ABOVE</b>			
PURCHASE ORDER NO.		SEAL NUMBERS		THIS CAR LEASED TO: John Doe, Inc.		LIGHT-TARE WEIGHT IS			
IF CHARGES ARE TO BE PREPAID, WRITE OR STAMP HERE "TO BE PREPAID"  Prepaid			Subject to section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignee, the consignee shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.			SHIPPER  John Doe, Inc.  PER			
			SIGNATURE OF COMRAIGNOR						

PLANT COPY

\*\*\*\*\*  
 \* STRAIGHT BILL OF LADING — SHORT FORM — Original — Not Negotiable Attachment 5  
 \* Page 2 of 2  
 \*\*\*\*\*

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.									
CUST. NUMBER	S.D. NUMBER	CAR OR TRAILER INITIAL AND NUMBER			DATE SHIPPED	MO. OF DEE	ROUTE CODE	SHP. P.L.T.	
		GAPX 6075							
NET WEIGHT	GROSS WEIGHT	NO. OF UNIT	UNIT CODE	PROD. CODE	PROD. P.L.T.	<small>the property described below, in apparent good order, except as noted (contents and condition of contents of package unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination.            It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Alaska Freight Classification in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.            Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.</small>			
CONSIGNEE John Doe, Inc.					DESTINATION	STATE OF	COUNTY OF		
					Chicago, IL		Cook		
FROM Permanent Postoffice Address of Shipper John Doe, Inc. St. Louis, MO					AT				
ROUTE ABC Railroad					DELIVERING CARRIER ABC	AGENT ABC			
					PER				
NO. PKGS.	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS				WEIGHT (Sub. to Corr.)	RATE			
1 T/C	Phenol, Molten 6.1 UN 2312 II RQ ( Phenol )  EMERGENCY CONTACT 1-800-424-9300  HAZ MAT STCC = 4921220				20,000 Gals.				
<small>This shipment is correctly described:</small> <b>CORRECT WEIGHT IS</b> LBS. <small>subject to verification by the Eastern, Southern or Western Weighing and Inspection Bureau, whichever applicable, 18943</small> John Doe, Inc. SHIPPER					<b>THE TOTAL WEIGHT OF THE PALLETS USED ON THE SHIPMENT IS SHOWN ABOVE.</b>				
PURCHASE ORDER NO.					SEAL NUMBERS		THIS CAR LEASED TO: John Doe, Inc.		LIGHT-TARE WEIGHT IS
<small>IF CHARGES ARE TO BE PREPAID, WRITE OR STAMP HERE "TO BE PREPAID"</small> Prepaid					<small>Subject to section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.            The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.</small>				
					SHIPPER John Doe, Inc.				
					PER				
					SIGNATURE OF CONSIGNEE				

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Attachment 6. Top 125 Hazardous Commodity Movements by Tank Car Origination

RANK	COMMODITY NAME	CLASS
1	Freight All Kinds - Hazardous Materials	
2	Freight All Kinds - Hazardous Materials	
3	Sodium Hydroxide Solution	C
4	Petroleum Gases Liquefied	CG
5	Sulfuric Acid	C
6	Elevated Temperature Liquid, N.O.S.	ORM
7	Ammonia Anhydrous, Liquefied	CG
6	Chlorine	CG
9	Sulfur Molten	ORM
10	Sulfur Molten	FS
11	Vinyl Chloride Inhibited	CG
12	Propane	CG
13	Fuel Oil	FL
14	Denatured Alcohol	FL
15	Methanol	FL
16	Gasoline	FL
17	Phosphoric Acid	C
18	Hydrochloric Acid	C
19	Styrene Monomer, Inhibited	FL
20	Carbon Dioxide, Refrigerated liquid	CG
21	Ammonium Nitrate	O
22	Gasoline	FL
23	Sodium Chlorate	O
24	Diesel Fuel	CL
25	Butane	CG
26	Petroleum Crude Oil	FL
27	Phenol Molten	P
26	Fuel Oil	FL
29	Butadienes, Inhibited	CG
30	Fuel Oil	CL
31	Ethylene Oxide	CG
32	Methyl Tert Butyl Ether	FL
33	Fuel, Aviation, Turbine Engine	FL
34	Isobutane	CG
35	Environ. Hazardous Substances, Liquid, N.O.S.	ORM
36	Environ. Hazardous Substances, Liquid, N.O.S.	ORM
37	Environ. Hazardous Substances, Liquid, N.O.S.	ORM
38	Propylene	CG
39	Propylene Oxide	FL
40	Vinyl Acetate, Inhibited	FL
41	Environ. Hazardous Substances, Solid, N.O.S.	ORM
42	Environ. Hazardous Substances, Solid, N.O.S.	ORM
43	Petroleum Crude Oil	CL
44	Xylenes	FL
45	Other Regulated Substances, Liquid	ORM
46	Cyclohexane	FL
47	Hydrogen Peroxide, Stabilized	O
48	Hexamethylenediamine Solid	C
49	Acrylic Acid, Inhibited	C
50	Sulfuric Acid, Spent	C
51	Methyl Methacrylate Monomer, Inhibited	FL
52	Environ. Hazardous Substances, Solid, N.O.S.	ORM
53	Potassium Hydroxide, Solution	C
54	Toluene Dilsocyanate	P
55	Phosphoric Acid	C
56	Acetic Acid, Glacial	C
57	Formaldehyde Solutions	C
58	Butyl Acrylates, Inhibited	FL
59	Environ. Hazardous Substances, Liquid, N.O.S.	ORM
60	Petroleum Distillates N.O.S.	CL
61	Acetone	FL
62	Compounds, Cleaning Liquid	FL
63	Toluene	FL
64	Environ. Hazardous Substances, Solid, N.O.S.	ORM
65	Ammonium Nitrate Fertilizers	O

RANK	COMMODITY NAME	CLASS
66	Ethanol	FL
67	White Asbestos	ORM
68	Elevated Temperature Liquid, N.O.S.	ORM
69	Liquefied Petroleum Gas	CG
70	Acrylonitrile Inhibited	FL
71	Liquefied Petroleum Gas	CG
72	Petroleum Distillates, N.O.S.	FL
73	Environ. Hazardous Substances, Liquid	ORM
74	Hazardous Waste, Solid, N.O.S.	ORM
75	Benzene	FL
76	Fuel Oil	FL
77	Ethylene Dichloride	FL
78	Hydrogen Flouride, Anhydrous	C
79	Liquefied Petroleum Gas	CG
80	Sulfur Dioxide	CG
81	Elevated Temperature Liquid, N.O.S.	ORM
82	Elevated Temperature Liquid Flammable, N.O.S.	FL
83	Elevated Temperature Liquid, N.O.S.	ORM
84	Diesel Fuel	CL
85	Waste Flammable Liquids	FL
86	Other Regulated Substances, Liquid N.O.S.	ORM
87	Isobutane	CG
88	Isopropanol	FL
89	Sodium Chlorate, Aqueous Solution	O
90	Other Regulated Substances, N.O.S.	ORM
91	Phosphorus White, Dry	FS
92	Ferrous Chloride, Solution	C
93	Elevated Temperature Liquid, N.O.S.	ORM
94	Methanol	FL
95	Petroleum Distillates N.O.S.	FL
96	Elevated Temperature Liquid, N.O.S.	ORM
97	Propylene	CG
98	Flammable Liquids, N.O.S.	FL
99	Environ. Hazardous Substances, Solid, N.O.S.	ORM
100	Butanols	FL
101	Nitric Acid	C
102	Polymeric Beads, Expandable	ORM
103	Combustible Liquids N.O.S.	CI
104	Acetic Anhydride	C
105	Fuel Oil	CL
100	Liquefied Petroleum Gas	CG
107	Fuel Oil	CL
108	Butylene	CG
109	Ferric Chloride, Solution	C
110	Freight All Kinds - Hazardous Materials	
111	Acetaldehyde	FL
112	Other Regulated Substances, Liquid	ORM
113	Batteries, Wet, Filled with Acid	C
114	Maleic Anhydride	C
115	Hydrocarbons, Liquid, N.O.S.	FL
116	Sulfuric Acid, Fuming	C
117	Ammonium Nitrate, Liquid	O
118	Methyl Chloride	CG
119	Alcoholic Beverages	FL
120	Elevated Temperature Liquid N.O.S.	ORM
121	Combustible Liquid N.O.S.	CL
122	Ethyl Acetate	FL
123	Ethyl Acrylate, Inhibited	FL
124	Kerosene	FL
125	Other Regulated Substances, Liquid, N.O.S.	ORM
<b>Hazard Class Code</b>		
<b>CG - Compressed Gas    FL - Flammable Liquid</b>		
<b>FS - Flammable Solid    CL - Combustible Liquid</b>		
<b>O - Oxidizer                    P - Poison</b>		
<b>C - Corrosive                    ORM - Other Regulated Material</b>		