

Emergency Response to Unit Train Incidents

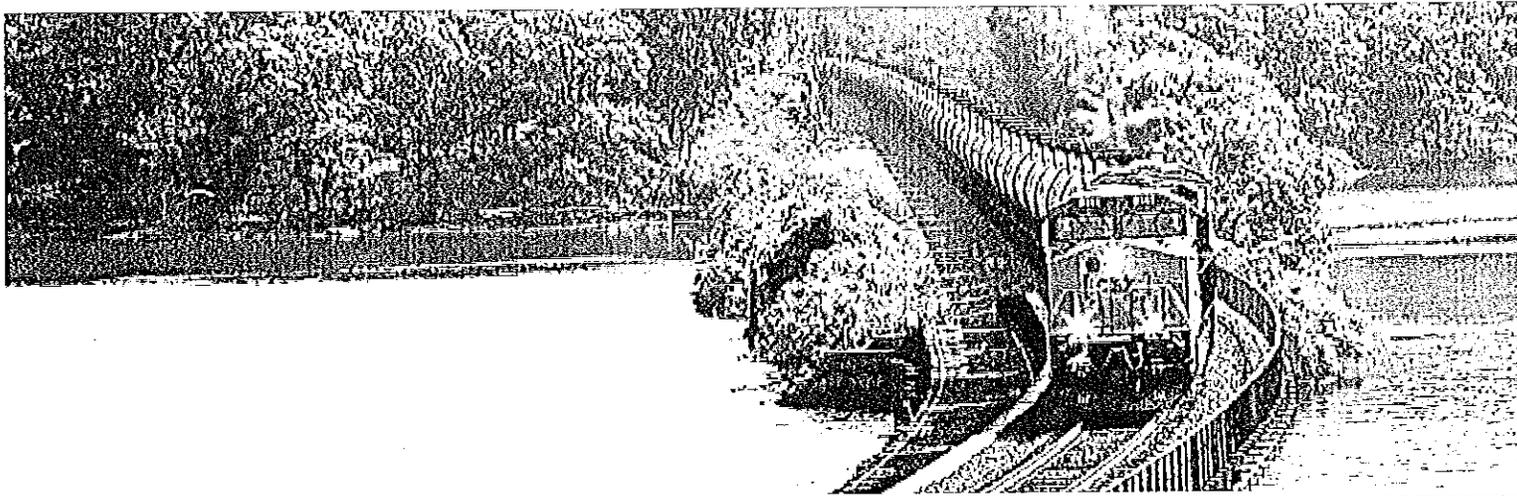


How tomorrow moves

[**CSX**]
.. ..

This publication is dedicated
to emergency response,
emergency management,
homeland security,
and law enforcement professionals.





Unit Train Safety Supplement Overview

This guide provides response information to emergency first responders dealing with unit trains carrying hazardous materials. This is a supplement to the CSX Community Awareness Emergency Planning Guide to Railroad Incidents. This guide is not a substitute for effective and regular communications during a rail related emergency.

Call the CSX Public Safety Coordination Center (PSCC) immediately at 800-232-0144 to access the most up to date hazard information and response resources.

To report a CSX railroad emergency, call CSX's Public Safety Coordination Center (PSCC) immediately at 800-232-0144.

Included in this Guide:

- I. About CSX
- II. Unit trains
- III. Commodities transported in CSX unit trains
- IV. Train documentation
- V. Railroad resources and response protocols
- VI. Tank cars
- VII. Unit train emergency response information- differentiated by product
 - a. Petroleum Crude Oil
 - b. Ethanol
 - c. Anhydrous Ammonia
 - d. Molten Sulfur
- VIII. Acknowledgements

About CSX

CSX Transportation provides rail, intermodal and rail-to-truck transload services to customers across 23 states, the District of Columbia and the Canadian provinces of Quebec and Ontario. With a team of 34,000 dedicated employees across its 21,000-mile network, CSX moves a wide variety of products essential to the U.S. economy, ranging from steel and concrete to food and grain as well as hazardous materials.

Safety Performance

Safety is a core value at CSX. CSX has invested billions of dollars over the last few years in infrastructure, maintenance, employee training and community safety outreach programs to help ensure the safety and security of its network and the communities where we operate. Over the last decade, CSX has reduced train accidents by more than half and will continue to improve railroad safety in the years to come by enhancing technology, infrastructure, and procedures.

Community emergency first responders play an integral role safeguarding their communities as well as in CSX's safety mission – particularly when it comes to the transport of hazardous materials. While railroads have proven to be the safest mode for transporting hazardous materials, it is important that emergency first responders and communities are aware of the potential safety hazards and environmental impacts rail accidents involving these materials might entail.

Unit Train Commodities

The commodities transported by CSX in unit trains are driven by industry markets and customer demand. Unit train service is offered to shippers and receivers based on the customers' needs. While the vast majority of the commodities CSX transports in unit trains are non-hazardous, such as grain and coal, this guide focuses on those unit train commodities that are classified by the U.S. DOT as hazardous materials. This guide also provides emergency first responders with easy-to-access information about how to safely manage an incident involving one of these commodities.

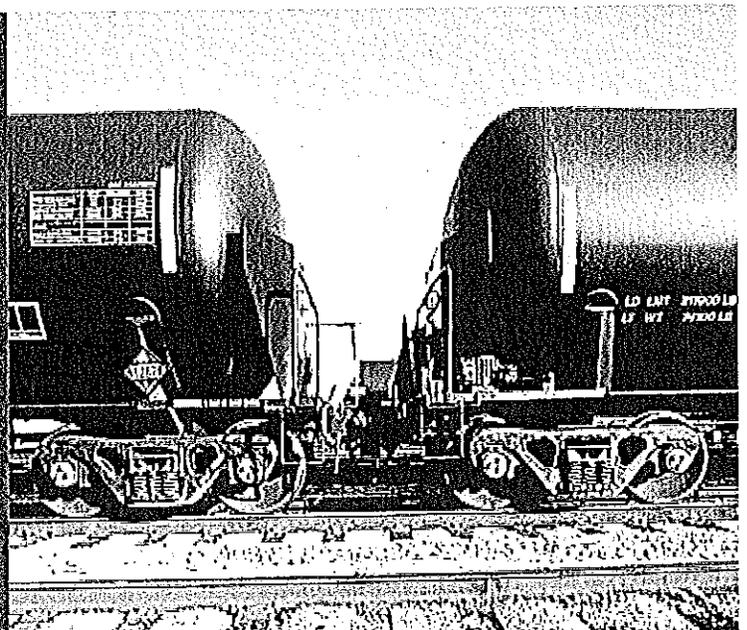
CSX Unit Trains transport the following hazardous materials:

- a. Petroleum Crude Oil
- b. Ethanol
- c. Anhydrous Ammonia
- d. Molten Sulfur

NOTE: Hazardous materials can move as single cars in all types of railcars across the CSX network.

What is a Unit Train?

A unit train is a train made up of railcars transporting the same commodity throughout the entire train. Unit trains typically move from one point or origin (e.g. a shipper's plant) to a single destination. These trains provide customers with efficient and economical service by bypassing normal freight rail classification practices that include separating the cars in a train at a rail yard and repositioning them into other trains.



Hazardous Materials Shipping Papers

Unit trains are comprised of a single commodity throughout the entire train. While observing a long string of rail cars containing hazardous materials may indicate all other cars in the train are the same, the only way to be certain is to access the hazardous materials shipping documents.

There are four primary ways to access the hazardous materials Shipping Documentation.

1. Locate the train crew (typically located on the lead locomotive of the train)
2. Call CSX PSCC at 800-232-0144
3. Call your state emergency response center (if your state has a CSX SecureNOW partnership)
4. Contact CHEMTREC at 800-424-9300

Train Crew

The train crew members will have a copy of the train's hazardous materials shipping papers in their possession and are instructed to provide the paperwork to first responders upon request at the site of a train emergency.

CSX Public Safety Coordination Center(PSCC): 800-232-0144

The CSX PSCC is staffed 24/7 with hazardous materials specialists who have immediate access to train and commodity information. The PSCC utilizes state of the art asset tracking software to access this information and can send a spreadsheet or PDF to a fax machine, computer or mobile device. The quickest way to access this information is to provide the operator a car or locomotive initial and number.

To report a CSX railroad emergency, call CSX's Public Safety Coordination Center (PSCC) immediately at 800-232-0144.

State Emergency Response Center

As part of its emergency planning public partnership, CSX has provided most states in our 23-state rail network with access to our Network Operation Workstation. While the railroad will always have quickest access to information about the train and access to railroad response personnel and resources, the state emergency response center can access and distribute train consists and hazardous materials shipping papers.

CHEMTREC: 800-424-9300

In addition to the state planning partnerships, CSX has given CHEMTREC access to the CSX Network Operation Workstation to enable CHEMTREC representatives to access information about CSX trains to communicate to responders.

Residue Shipments

Be aware that shipments marked on the shipping paper as residue or empty may still contain a residual amount of product in the tank car.

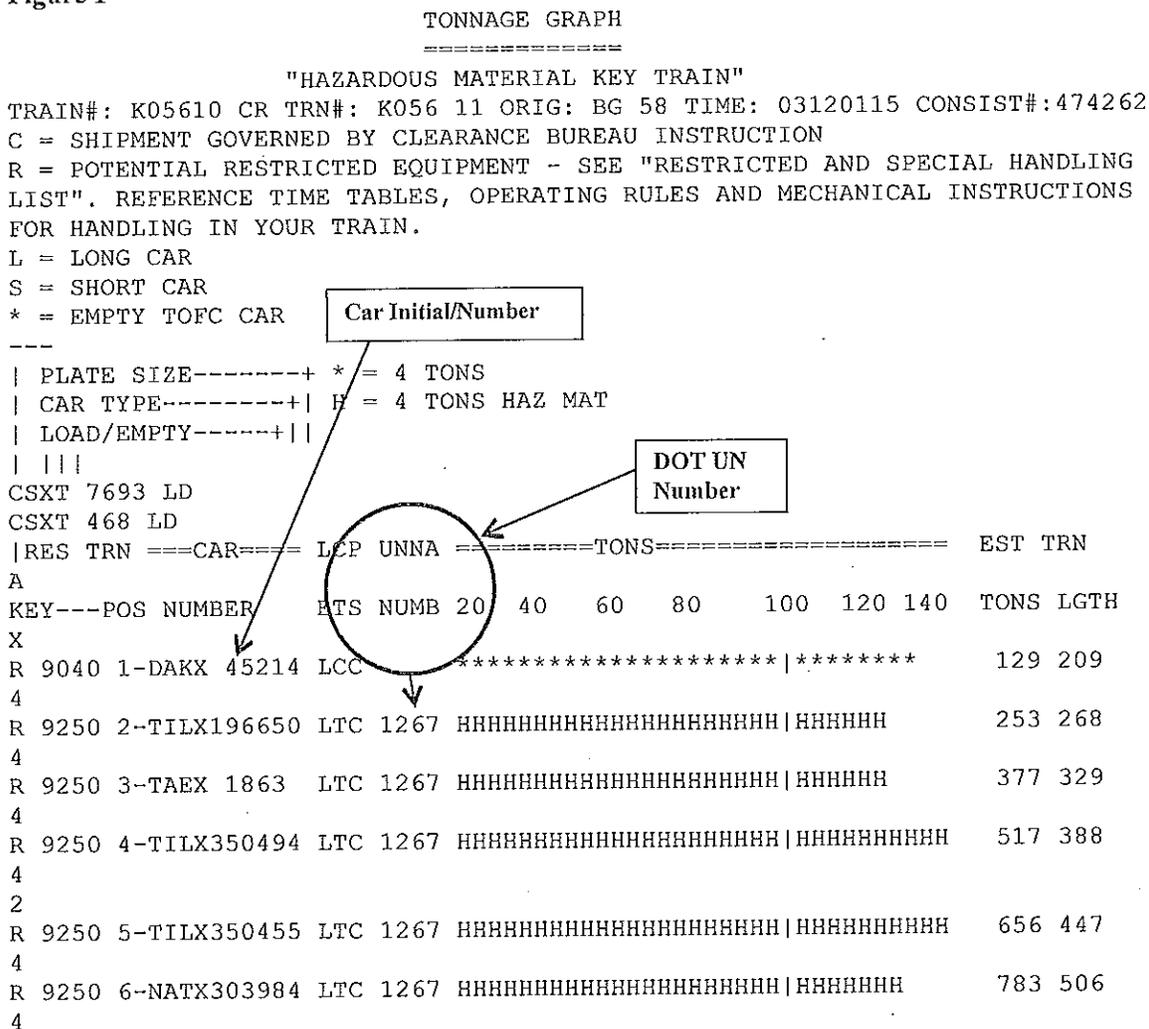


Train Documentation

A **Train Consist** is the primary shipping paper used by CSX in railroad operations. When hazardous materials are present in a train, a train consist contains the following four basic sections:

1. A "Tonnage Graph" listing each car in the train by initial and number beginning with the first car and showing each car's numerical position in the train; marking all cars containing hazardous materials with a series of capital "Hs."

Figure 1-



2.A "Position-In-Train" document bearing a "Notice of Rail Cars/Units Containing Hazardous Materials," the product's four-digit ID number with car initials and numbers repeated, whether or not the car is loaded (L) or empty (E) and, what the car last contained (Residue). (Figure 2)

Figure-2 Position in Train Document

CT 168 REPORT - NOTICE OF RAIL CARS/UNITS CONTAINING HAZARDOUS MATERIALS

TRAIN#: K05610 CR TRN#: K056 11 ORIG: BG 58 TIME: 03120115 CONSIST#: 474262

THE FOLLOWING RAIL CARS/UNITS CONTAINING HAZARDOUS MATERIALS ARE LOCATED IN YOUR TRAIN. THEY MUST BE POSITIONED IN YOUR TRAIN IN ACCORDANCE WITH FEDERAL REGULATIONS. WHENEVER THERE IS A CHANGE IN THE POSITION OF ANY HAZARDOUS MATERIAL CAR IN THE TRAIN, THE CONDUCTOR (OR DESIGNEE) MUST IMMEDIATELY UPDATE THIS DOCUMENT TO SHOW THE NEW POSITION OF ALL HAZARDOUS MATERIAL CARS.

1.2

KEY FIELD CODES:

- P = POISON INHALATION HAZARD ZONE A OR ZONE B
- E = ENVIRONMENTALLY SENSITIVE CHEMICALS
- R = RADIOACTIVE
- F = FLAMMABLE GAS 2.1
- X = EXPLOSIVES 1.1 OR

INIT	L CONTAINER		COMMENT	I.D.	TRN	REVISION				
	NUMBER	E				NUMB	KEY	POS	1ST	2ND
TILX	196650	L			1267			002		
TAEX	1863	L			1267			003		
TILX	350494	L			1267			004		
TILX	350455	L			1267			005		
NATX	303984	L			1267			006		
CITX	221122	L			1267			007		
ACFX	71315	L			1267			008		
NATX	45068	L			1267			009		

NOTE: In unit train service, these will only change in the event of a car being set out on its route to destination.

3.A "Train Listing and Hazardous Material Descriptions" list again showing car initial and number, its position in the train, name of the shipper and receiver, emergency telephone number, the product's hazard class, proper shipping name, and Standard Transportation Commodity Code (STCC) Number. The STCC structure is a system of assigning specific numbers to a specific article/commodity or a group of articles/commodities when offered for transportation by rail. (Figure 3)

Figure 3- Train listing and hazardous material description.

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TRAIN LISTING AND HAZARDOUS MATERIAL DESCRIPTIONS      PAGE: 001
=====
TRAIN#: K05610 CR TRN#: K056  11 ORIG: BG  58 TIME: 03120115 CONSIST#:
474262

      CARS IN THIS CONSIST COUNT FROM FRONT TO REAR

      CSXT    7693 L D127
      CSXT    468  L D127

===== B L O C K   S U M M A R Y
=====
=== ENG    LOCOMOTIVE
SUBTOT    MERCHAN  PIGFLAT  COAL    PERISH    AUTORAK    BLOCK    BLOCK
L   E      L   E      L   E      L   E      L   E      L   E      TONS    LENGTH
                                           144
=====

      CAR          CAR          COMMODITY CODE
      NUMBER      TYPE          STCC      ALPHA  DESTINATION CONSIGNEE MP      YZCN
-----
1 DAKX  45214 L C514    2821156 PLASTIC IOWACITY IA ALPLAIOWA DCGIAI
2 TILX  196650 L T108    4910165 4910165 PHILADELPPA TRANSFLO BBF 11113
*****
*          HAZMAT      *          1 TK//UN1267//PETROLEUM CRUDE OIL//CLASS 3//
*****
//PG I//HAZMAT STCC=4910165
U.S.A. EMERGENCY CONTACT:  8004249300
SHIPPER CONTACT: CHEMTREC
FROM SHIPPER: HIGH SIERRA ENERGY LP
SHIP ADDRESS: 3773 CHERRY CREEK DR
                DENVER CO 80209
TO CONSIGNEE: PHILADELPHIA ENERGY SOLUTIONS
CONS ADDRESS: 35TH & MIFFLIN STS
PHILADELPHIA PA 19145

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4.A "Hazardous Special Handling Instructions" section describing Emergency Handling Precautions. (Figure 4)

Figure 4- Hazardous Special Handling Instructions

HAZARDOUS SPECIAL HANDLING INSTRUCTIONS

----- IN
CASE OF ACCIDENT PROVIDE THIS LIST TO RESPONSE TEAM

TRAIN#: K05610 CR TRN#: K05611 ORIG: BG 58 TIME: 03120115 CONSIST#:474262

EMERGENCY HANDLING PRECAUTIONS

4910165

HAZARDOUS COMMODITY

TILX 196650 CAR 002 FROM ENGINE
TAEX 1863 CAR 003 FROM ENGINE

CLASS 3 (FLAMMABLE LIQUID)
UN1267

PETROLEUM CRUDE OIL IS A DARK VISCOUS LIQUID. IT HAS A FLASH POINT OF LESS THAN 141 DEG. F. IT IS LIGHTER THAN WATER AND INSOLUBLE IN WATER. ITS VAPORS ARE HEAVIER THAN AIR.

IF MATERIAL ON FIRE OR INVOLVED IN FIRE: DO NOT EXTINGUISH FIRE UNLESS FLOW CAN BE STOPPED USE WATER IN FLOODING QUANTITIES AS FOG SOLID STREAMS OF WATER MAY SPREAD FIRE COOL ALL AFFECTED CONTAINERS WITH FLOODING QUANTITIES OF WATER APPLY WATER FROM AS FAR A DISTANCE AS POSSIBLE USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE

IF MATERIAL NOT ON FIRE OR NOT INVOLVED IN FIRE: KEEP SPARKS, FLAMES, AND OTHER SOURCES OF IGNITION AWAY KEEP MATERIAL OUT OF WATER SOURCES AND SEWERS BUILD DIKES TO CONTAIN FLOW AS NECESSARY ATTEMPT TO STOP LEAK IF WITHOUT UNDUE PERSONNEL HAZARD USE WATER SPRAY TO KNOCK-DOWN VAPORS

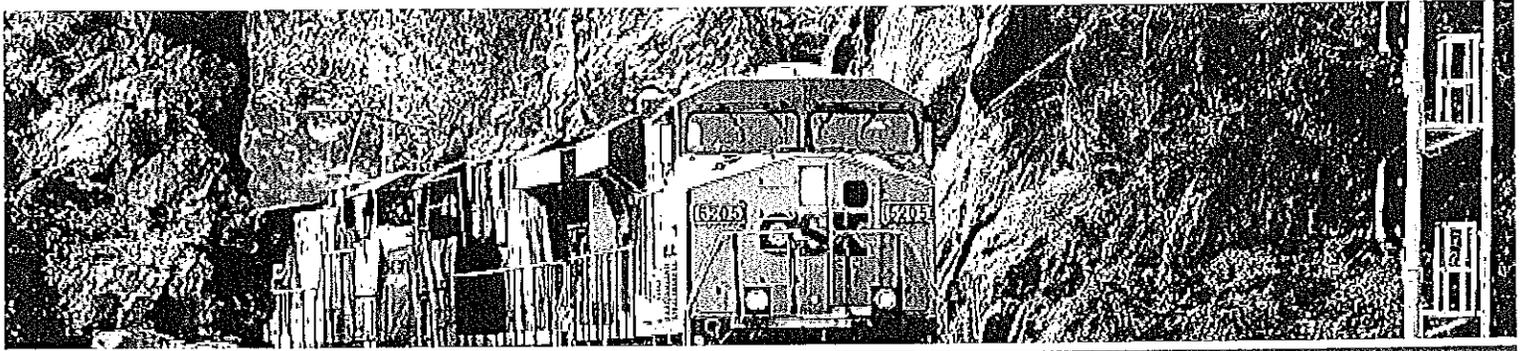
PERSONNEL PROTECTION: AVOID BREATHING VAPORS KEEP UPWIND WEAR APPROPRIATE CHEMICAL PROTECTIVE GLOVES, BOOTS AND GOGGLES DO NOT HANDLE BROKEN PACKAGES UNLESS WEARING APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT WASH AWAY ANY MATERIAL WHICH MAY HAVE CONTACTED THE BODY WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER

ENVIRONMENTAL CONSIDERATIONS - LAND SPILL: DIG A PIT, POND, LAGOON, HOLDING AREA TO CONTAIN LIQUID OR SOLID MATERIAL DIKE SURFACE FLOW USING SOIL, SAND BAGS, FOAMED POLYURETHANE, OR FOAMED CONCRETE ABSORB BULK LIQUID WITH FLY ASH, CEMENT POWDER, OR COMMERCIAL SORBENTS

ENVIRONMENTAL CONSIDERATIONS - WATER SPILL: USE NATURAL BARRIERS OR OIL SPILL CONTROL BOOMS TO LIMIT SPILL TRAVEL REMOVE TRAPPED MATERIAL WITH SUCTION HOSES

ENVIRONMENTAL CONSIDERATIONS - AIR SPILL: APPLY WATER SPRAY OR MIST TO KNOCK DOWN VAPORS

FIRST AID RESPONSES: MOVE VICTIM TO FRESH AIR; CALL EMERGENCY MEDICAL CARE. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN CASE OF CONTACT WITH MATERIAL, IMMEDIATELY FLUSH SKIN OR EYES WITH RUNNING WATER FOR AT LEAST 20 MINUTES. REMOVE AND ISOLATE CONTAMINATED CLOTHING AND SHOES AT THE SITE.



Railroad Resources and Response Protocols

In the event of an emergency, immediately contact the CSX Public Safety Coordination Center (PSCC) at 800-232-0144. Providing the initial and number of the lead locomotive or a railcar from the train will help expedite the PSCC in identifying the exact location of the train.

The CSX PSCC is comprised of communication specialists equipped to assist in the event of an emergency situation, including rail accidents, derailments and container spills. CSX internal resources include:

- Transportation, mechanical and engineering department representatives

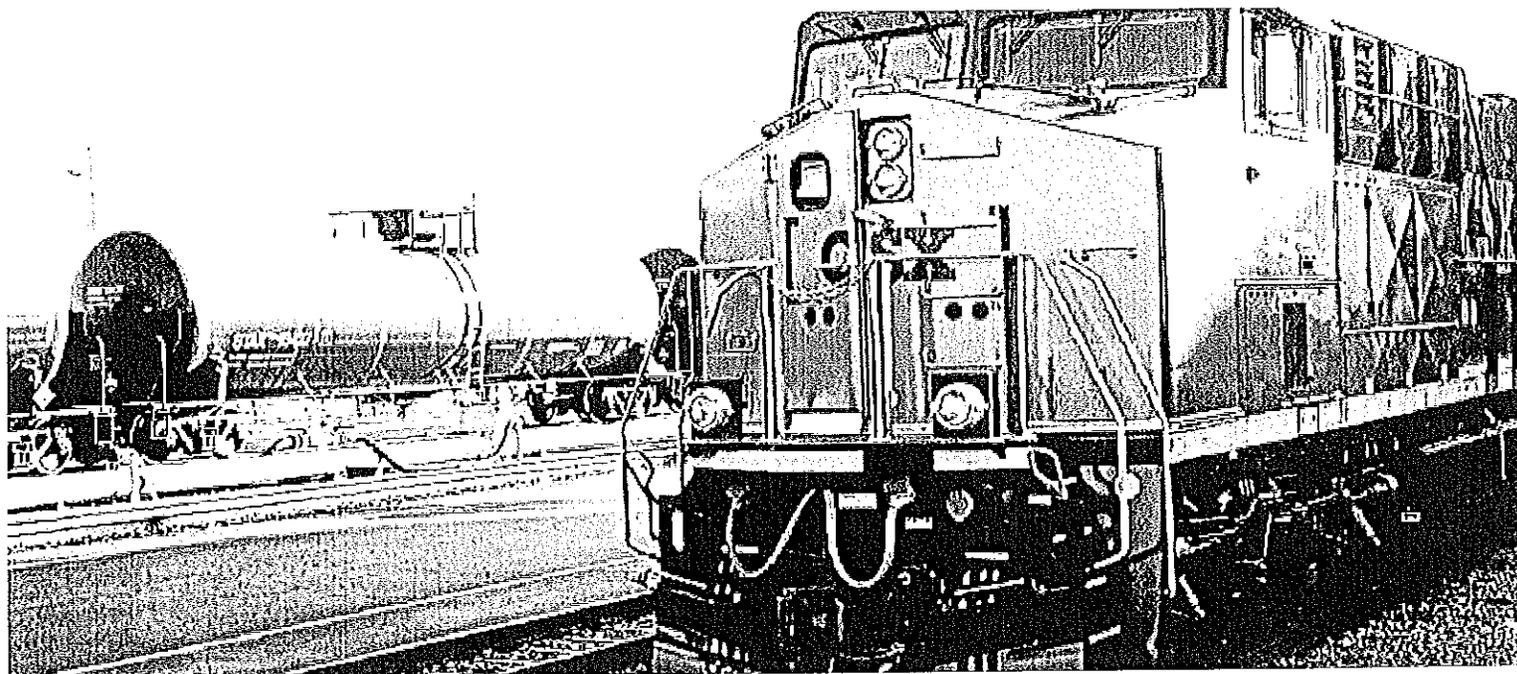
- Hazardous material, systems and environmental department representatives
- Corporate communication and public affairs representatives
- CSX police department representatives
- General claims representatives

CSX Emergency Response Network

In the event of a derailment or spill, CSX will quickly deploy trained employees and contractor resources. CSX maintains contracts and agreements with pre-qualified and regularly audited emergency response contractors and environmental consultants capable of responding to all aspects of an emergency. While on-scene, these contractors act as agents of CSX and work directly under CSX's control and supervision.

In addition to performing assessments and monitoring public health exposure to potentially hazardous materials, CSX's contractors perform a number of vital tasks while working at accident scenes:

CSX Contractors and Associated Services	
Contractor	Service Provided
Trained personnel	Firefighting and spill containment expertise and equipment to manage incidents involving fire, leak or potential spill.
Industrial hygiene and public health contractors	Technical expertise and equipment to perform on site and off site air and water sampling
Environmental response contractors	Vacuum equipment, pumping equipment and highway tankers for the recovery of spilled products
Environmental recovery contractors	Technical expertise for on-site remediation or removal of contaminated water, soil or debris from the incident site
Railroad rerailing and wrecking contractors	Heavy equipment such as cranes, off-track lifting equipment, and heavy earth moving equipment
Equipment operators and ground crews	Lift and rerail damaged cars and locomotives

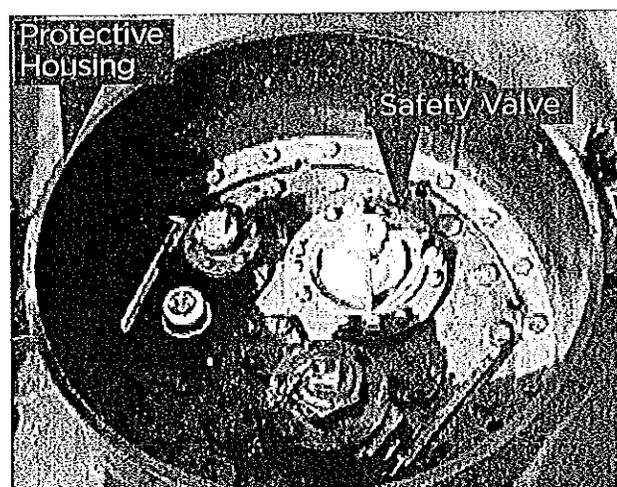
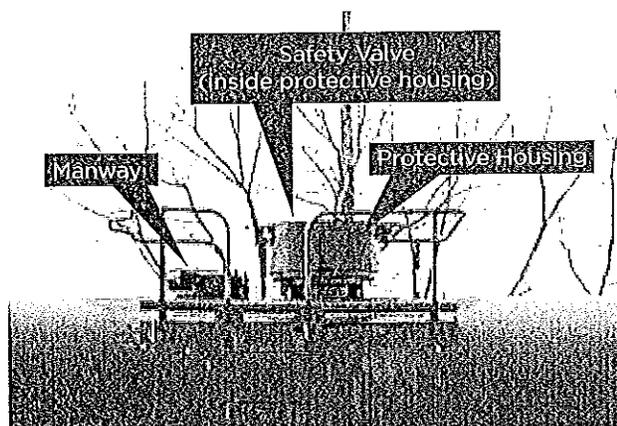


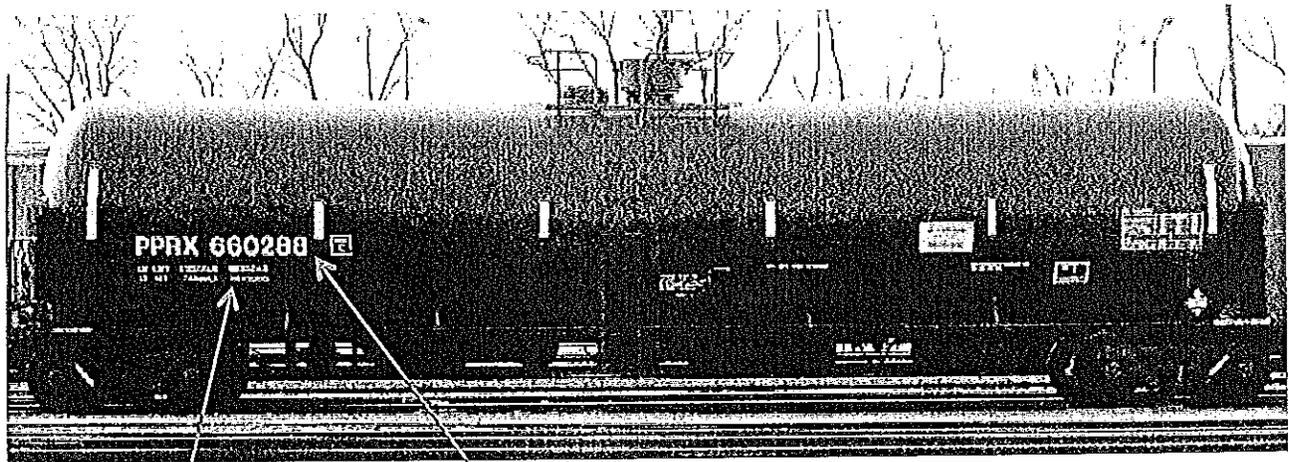
Tank Cars

Tank cars are the primary containers used to transport hazardous material by rail. A basic skill in incident damage assessment is the correct dissemination of information concerning the location and position of damage to containers. A system has been established to identify the left and right side for rail tank cars, regardless of the position of the car. All orientation begins with the "B" end of the car. The "B" end is that end of the car that has the handbrake. The end opposite the brake end is called the "A" end. To determine which side of the car is left and which is right, one would stand facing the "B" end. To the right is right, to the left is left.

The figures on the next page show the orientation scheme for all rail cars.

Typical Tank Car Fittings on a Unit Train





Car Weight Information

Reporting Marks

Tank Car Markings and Stenciling

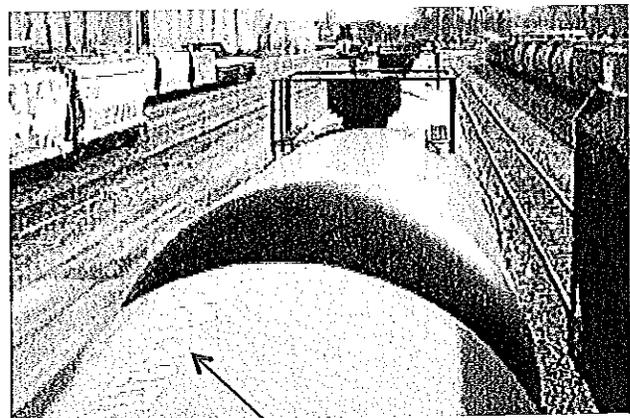
The following photographs show some of the most important stencils for rail tank cars. Of particular interest to emergency responders are the "DOT specification stencils," which appear to the right hand side on both sides of the cars. Additionally, stencils showing the liquid capacity of the car in gallons and liters are shown on both ends of the car.

On the left hand side of the car are the "reporting marks." The reporting marks contain the car's initial and number, which indicate the owner and serial number of the car. The car's initial and number are vital to retrieving information concerning the car's landing, shipper and consignee. In the event of an emergency involving a rail car, every attempt should be made to determine the car's initial and number so that information concerning that specific car can be obtained.

Rail car initials and numbers are two of the most important pieces of information that emergency responders can obtain at the scene of a railroad emergency. All information related to the rail car is referenced by using the car initials and number. Responders should attempt to accurately record and report the initials and numbers of any cars involved in a derailment or other emergency situation. The rail car's initial and number are stenciled on both sides of the rail car (to the left) and on both ends of the rail car. Sometimes, they may also be located on top of the car closest to the "B" end.



Capacity In US Gallons & Liters



Reporting Marks May Be on Top of Rail Car



DOT Specification Stenciling

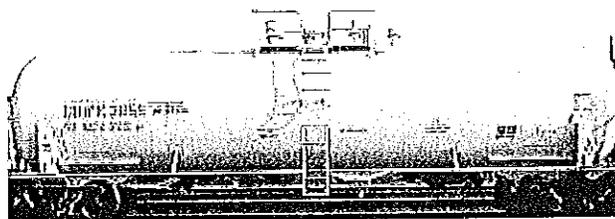
Tank Car Specifications

Railroad tank cars can be divided into two major categories: general service cars and high pressure cars. Each type of tank car has distinctive characteristics that can provide valuable information to emergency responders.

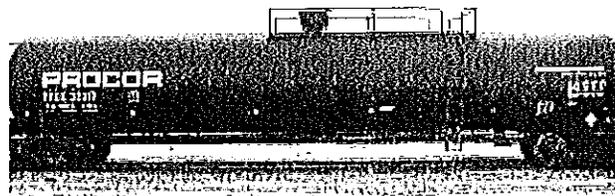
General service tank cars have tank test pressure at or below 100 PSI and also have exposed valves and fittings at the top and bottom of the car.

Pressure cars on the other hand, have tank test pressures of 100 PSI to 600 PSI and have no exposed valves or fittings on the car. All of the loading/unloading valves and fittings are located within a protective housing at the top of the car.

The following figures illustrate how you might be able to identify what type of tank car is involved by looking at the car silhouette.



General Service (Low Pressure) Tank Car: Note the exposed fittings at the top and underneath the car



High Pressure Tank Car: Note the single protective housing at the top of the car and no fittings underneath the car

Tank Car Design Evolution

Railroad tank cars used to transport hazardous materials are regulated by the U.S. Department of Transportation (DOT). Almost all flammable liquids move in DOT specification 111 series tank cars (DOT 111). When you see the DOT 111 marking on the tank car, it indicates that the tank car is built for non-pressure (less than 100 PSI) service. The DOT 111 tank cars are also commonly referred to as a general service tank car.

The safety features of general service DOT 111 tank cars have been enhanced over time and may contain a variety of safety upgrades depending on what commodity they were built to transport and when they were built.

A DOT 111 built after October 2011, and intended to transport flammable liquids like Crude Oil and Ethanol, will have enhanced safety features such as additional tank thickness, jacket protection, head shield protecting the ends of the tank, roll-over protection to prevent sheering of valves on top of the car and possibly thermal protection to protect the car in a fire.

In addition to recent safety improvements, the freight railroad industry continues to work with customers and the government to make additional improvements to general service DOT 111 tank cars used to transport flammable liquids.

EVOLUTION OF RAIL INDUSTRY TANK CAR STANDARDS FOR CRUDE OIL

The railroad industry is proposing to increase the federal tank car design and construction standards for new tank cars used to transport crude oil. This proposal comes after a previous upgrade proposal which the industry voluntarily adopted and has been observing since October 2011. This graphic shows the additional tank car components included in the latest rail industry proposal.

<p>HIGH CAPACITY PRESSURE RELIEF VALVE</p> <p>Current Standard: No requirement</p> <p>Latest Rail Industry Proposal: Requires a high capacity pressure relief device to protect against a rise in internal pressure resulting from fire. Provides for faster release of product.</p>	<p>TOP FITTINGS PROTECTION</p> <p>Current Standard: No requirement</p> <p>Latest Rail Industry Proposal: Requires top fittings protection to protect the integrity of valves and fittings used to load product in the event of an accident.</p>	<p>STEEL TANK</p> <p>Current Standard: Requires a minimum 1/2 inch thick steel tank for unjacketed cars and a minimum 3/4 inch thick steel tank for jacketed cars.</p> <p>Latest Rail Industry Proposal: Requires a minimum 1/2 inch thick steel tank.</p>
<p>HEAD SHIELDS</p> <p>Current Standard: Requires minimum 1/2 inch thick half height head shields at both ends of the tank car to improve puncture resistance.</p> <p>Latest Rail Industry Proposal: Requires 1/2 inch thick full-height head shields at both ends of the tank car.</p>	<p>BOTTOM OUTLET HANDLES</p> <p>Current Standard: No requirement</p> <p>Latest Rail Industry Proposal: Requires bottom outlet handle reconfiguration to prevent the handle from inadvertently opening the bottom outlets in the event of an accident.</p>	<p>JACKET AND THERMAL PROTECTION</p> <p>Current Standard: Requires a minimum 1/2 inch thick steel tank OR a 3/8 inch thick steel jacket.</p> <p>Latest Rail Industry Proposal: Requires the addition of both a 3/8 inch thick steel jacket around the tank car and thermal protection.</p>

Source: Association of American Railroads, February 2011

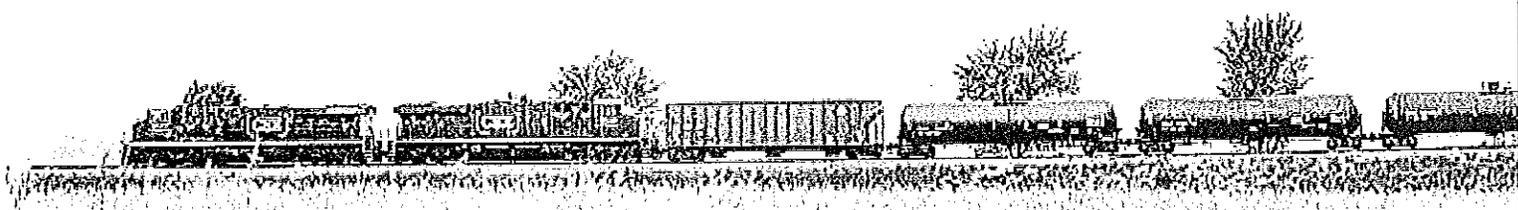
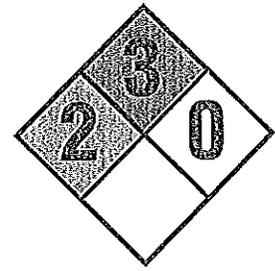
Petroleum Crude Oil

UN #: 1267

DOT Hazard Class: 3

Packing Group(s): I, II, III*

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Safety At a Glance

- The properties of Crude Oil can vary significantly by region
- Common varieties include Light Sweet Crude and Heavy Crude
- The vast majority of the Crude Oil unit trains on CSX contain Light Sweet Crude from the Bakken region
- The only way to know which variety of crude is in the railcar is to contact CSX at 800-232-0144.

Light Sweet Crude:

- May contain flammable gases including Butane, Pentane, and Propane
- May contain inhalation risk from Hydrogen Sulfide gas
- More volatile flash point than Heavy Crude

**By Amended Emergency Order DOT-OST-2014-0025 dated March 6, 2014, Petroleum Crude Oil in bulk quantities can only be shipped under Packing Group (PG) I or II hazardous material only*

Heavy Crude (often from Canada):

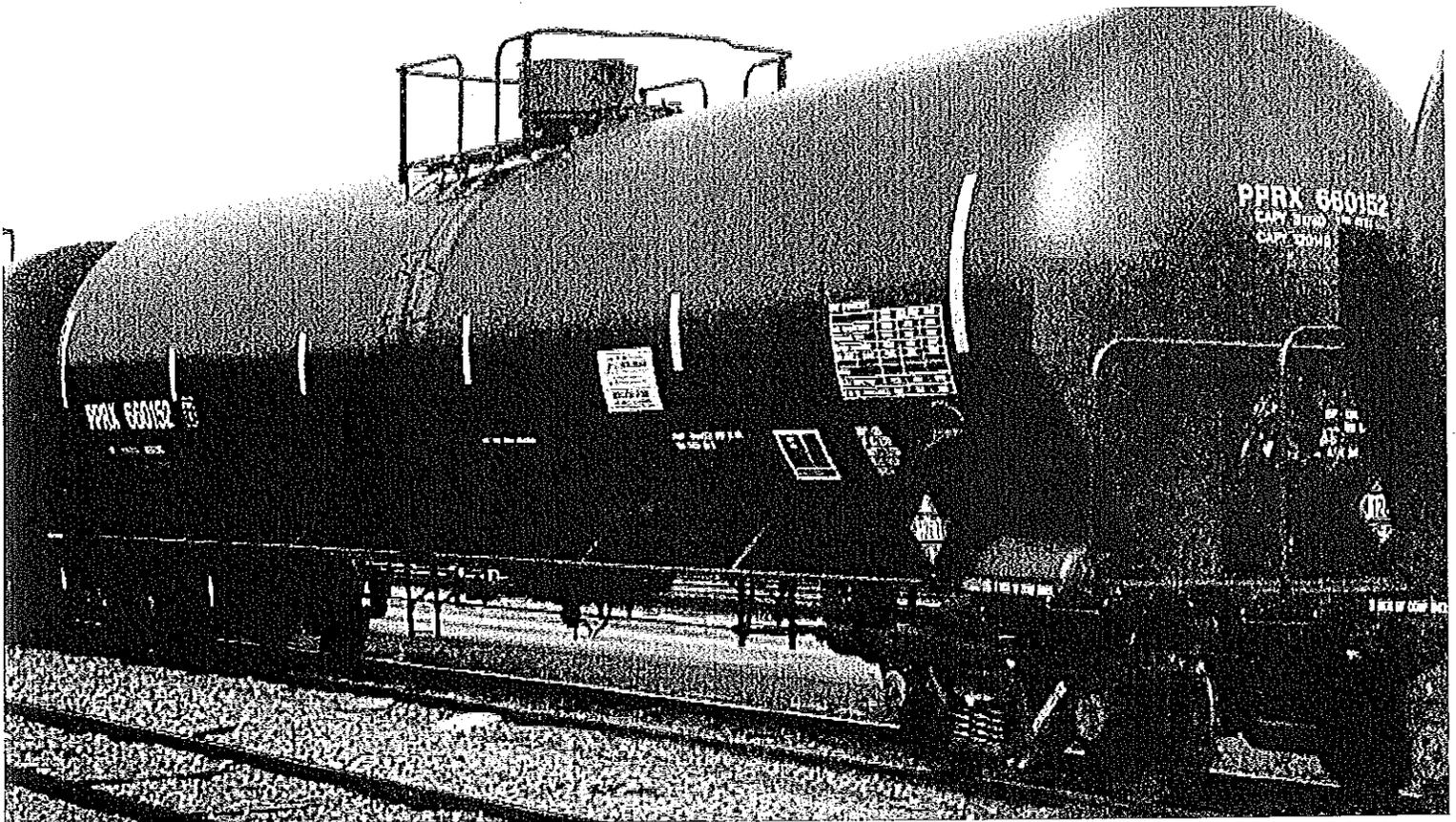
- Likely contains inhalation risk from Hydrogen Sulfide gas
- Typically lower volatility than Light Crude

Recommended Training and Resources

The TransCAER Crude Oil Emergency Response Training at www.TransCaer.com

CSX has more market specific information at www.CSXCRUDEBYRAIL.com.

To report a CSX railroad emergency, call CSX's Public Safety Coordination Center (PSCC) immediately at 800-232-0144.



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**FLAMMABLE LIQUIDS
(NON-POLAR/WATER-IMMISCIBLE)**

ERG2012

ERG2012

**FLAMMABLE LIQUIDS
(NON-POLAR/WATER-IMMISCIBLE)**

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POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE:** Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixture with air.
- Vapors may travel some 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 exothermally when heated or confined in a fire.
- Purcell to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.
- Substance may be transported hot.
- For UN3165, if Lithium ion batteries are involved, also consult GUIDE 147.
- If molten aluminum is involved, refer to GUIDE 169.

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.
- Contact with liquid or solid material may cause irritation.

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.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 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 firefighting protective clothing will only provide limited protection.

EVACUATION

- **Large Spill**
- Consider initial downwind evacuation for at least 300 meters (1000 feet).
- **Fire**
- 1 tank, rail car or tank truck involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 600 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 ineffective.

CAUTION: For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective.

Small Fire

- Dry chemical, CO₂, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- Do not use straight stream.
- Move containers from fire area if you can do it without risk.

Fire Involving Tanks or Container Loads

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

SPILL OR LEAK

- **ELIMINATE** all ignition sources (no smoking, fires, sparks or flames) in immediate area.
- All equipment used when handling this 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 container.
- Use clean non-sparking tools to collect absorbed material.

Large Spill

- One for one of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent fire on in closed spaces.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give 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.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if entangled to skin.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to avoid themselves.

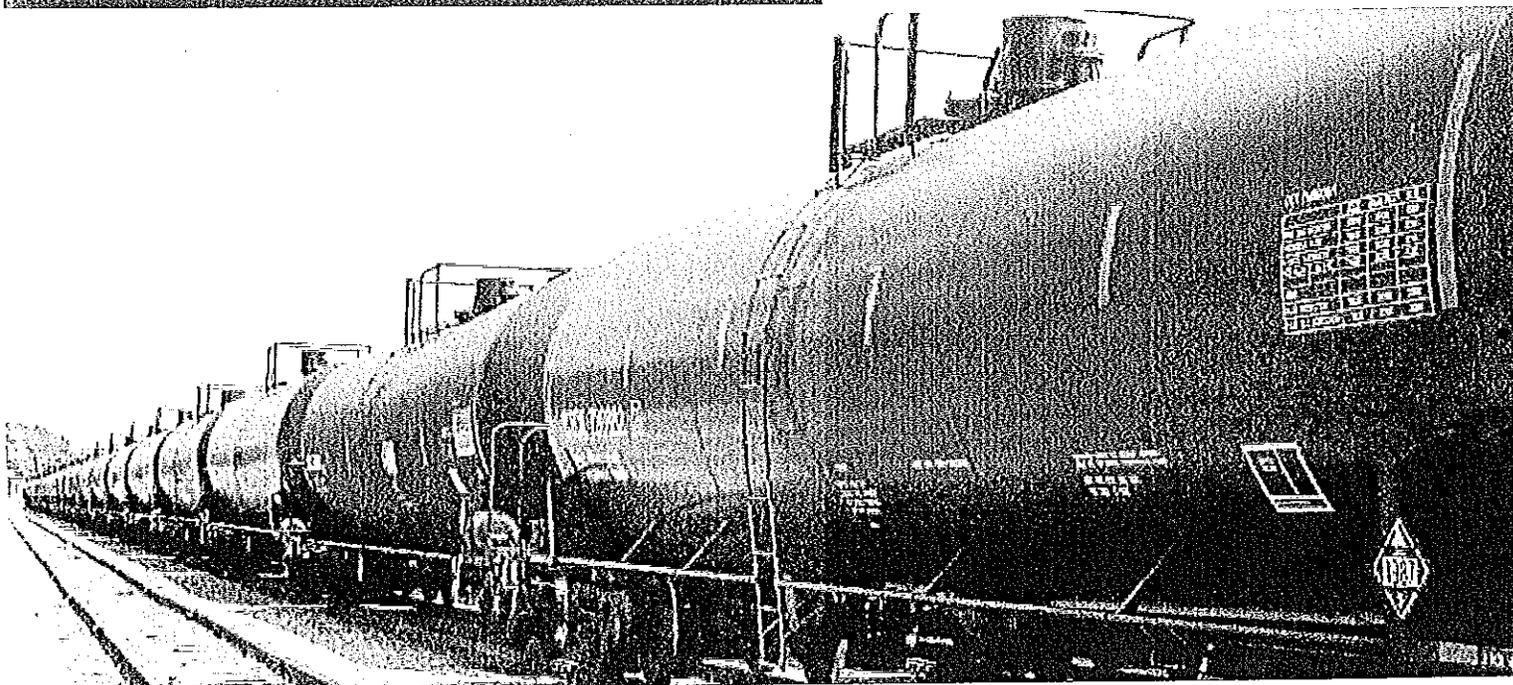
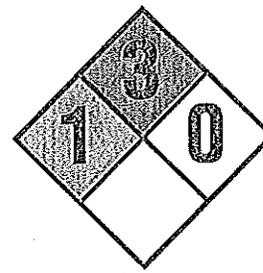
Alcohols N.O.S. (Ethanol)

UN #: 1987

DOT Hazard Class: 3

Packing Group(s): I, II, III

Emergency Response Guidebook 127



Safety At a Glance

- Ethanol is pure grain alcohol with a denature additive
- Typically denatured with addition of 2%-5% gasoline
- Fire burns with a low blue flame
- Fire may require alcohol resistant foam

Recommended Training and Resources

The TransCAER Ethanol Tour Training at www.TransCaer.com

The Renewable Fuels Association (RFA) information and training: www.ethanolrfa.org

Ethanol Emergency Response Center (EERC): www.ethanolresponse.com

To report a CSX railroad emergency, call CSX's Public Safety Coordination Center (PSCC) immediately at 800-232-0144.



GUIDE
127

FLAMMABLE LIQUIDS
(POLAR/WATER-MISCIBLE)

ERG2012

ERG2012

FLAMMABLE LIQUIDS
(POLAR/WATER-MISCIBLE)

GUIDE
127

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 expansion hazard: floors, outdoors or in sewers.
- Some 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 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 (rail), or Shipping Paper available or, no number, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 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; consider initial evacuation for 600 meters (3/4 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 ineffective.
- **Small Fire**
- Dry chemical, CO₂, water spray or alcohol-resistant foam.
- **Large Fire**
- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move coolers from the 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 involved in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let the tank burn.

SPILL OR LEAK

- **ELIMINATE** all ignition sources (no smoking, flames, 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 inert earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.
- **Large Spill**
- Dike for control of liquid spill to 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 services.
- Give 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.
- In case of burns, immediately cool affected skin for as long as possible with cool water. Do not remove clothing if becoming so tight.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

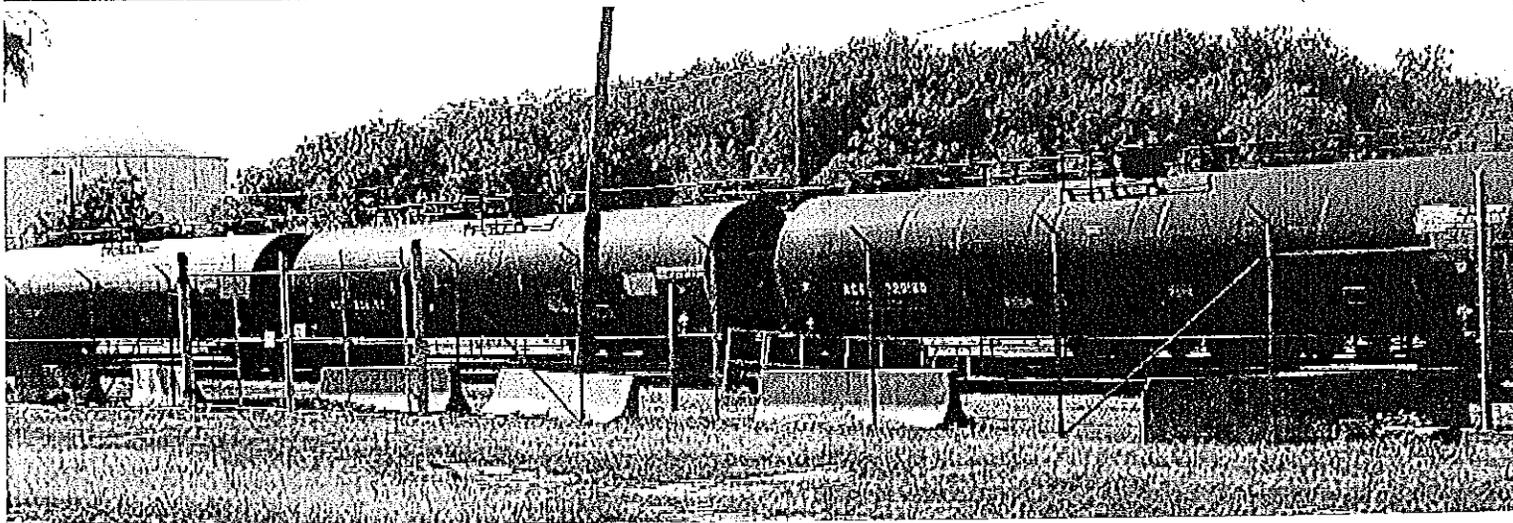
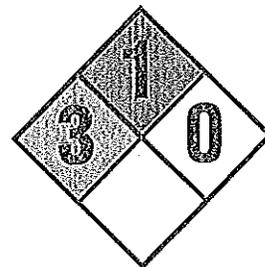
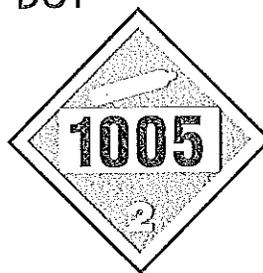
Ammonia, Anhydrous

UN #: 1005

DOT Hazard Class: 2.2 (2.3 Canadian*)

Emergency Response Guidebook 125

DOT



Safety At a Glance

- Anhydrous Ammonia is an inhalation hazard
- Anhydrous ammonia has effective odor warning properties (Smell at 3 PPM)

Recommended Training and Resources

The TransCAER Anhydrous Ammonia Tour Training at www.TransCaer.com

*

CANADIAN



To report a CSX railroad emergency, call CSX's Public Safety Coordination Center (PSCC) immediately at 800-232-0144.



POTENTIAL HAZARDS

HEALTH

- **TOXIC**; may be fatal if inhaled, ingested or absorbed through skin.
- Vapors are extremely irritating and corrosive.
- Contact with gas or liquid gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

FIRE OR EXPLOSION

- Some may burn but none is flammable.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent or explode from heat and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Plutonium cylinders may react.

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 tank cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (trenches, basements, tanks).
- Keep cool of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemically protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection. In the situations **ONLY**; it is not effective in situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protection Action Distances for high-toxic materials. For non-highly-toxic materials, 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 1000 meters (1/2 mile) in all directions; also consider initial evacuation for 1000 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

- Small Fire**
 - Dry chemical or CO₂.
- Large Fire**
 - Water spray, fog or regular foam.
 - Move containers from fire area if you can do it without risk.
 - Do not get water inside containers.
 - Damaged cylinders should be handled only by specialists.
- Fire Involving Tanks**
 - 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.
 - Do not direct water at source of leak or safety devices; icing may occur.
 - Withdraw immediately in case of rising sound from venting safety devices or other warning of tank failure.
 - **ALWAYS stay away** from tanks engulfed in fire.

SPILL OR LEAK

- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, contain leaking container so that gas escapes rather than liquid.
- Prevent entry into sewers, storm basements or confined areas.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Remove area or if gas has dispersed.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if artificial breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give 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 liquefied gas, thaw treated parts with lukewarm water.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of contact with Hydrogen fluoride, anhydrous (UN152), flush skin and eyes with water for 5 minutes; then, for skin exposures rub on a calcium gel combination; for eyes flush with a water/calcium solution for 15 minutes.
- Keep victim warm and quiet.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

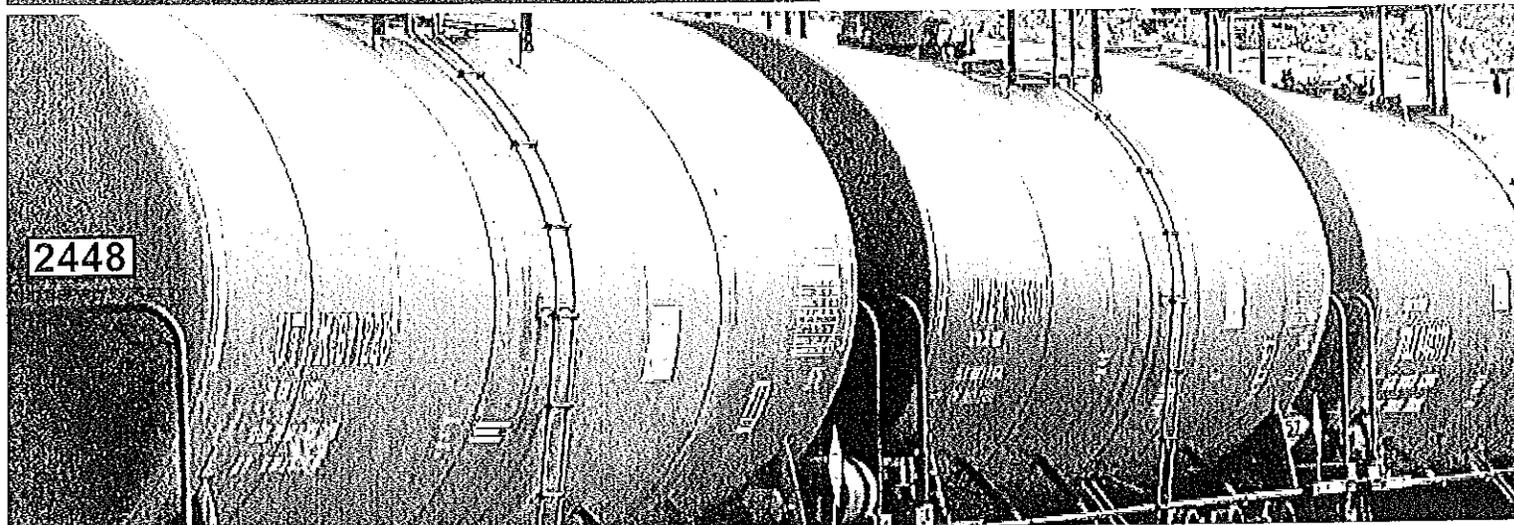
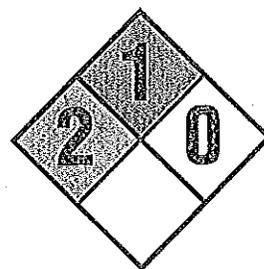
Sulfur, Molten

UN #:2448

DOT Hazard Class: 9

Packing Group: III

Emergency Response Guidebook 133



Safety At a Glance

- May contain inhalation risk from Hydrogen Sulfide gas
- Loaded at 285° +/- 15°, Solidifies at 250° over time in transit
- Properties of Molten Sulfur change when it solidifies
- Be aware of heat hazard in liquid phase
- In the event of a derailment and breach, leaking contents are at elevated temperatures

Recommended Training and Resources

The Sulfur Institute: Molten Sulfur Rail Tank Car Guidance Document: www.sulphurinstitute.org

To report a CSX railroad emergency, call CSX's Public Safety Coordination Center (PSCC) immediately at 800-232-0144.



POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Flammable/combustible material.
- May be ignited by friction, heat, sparks or flames.
- Some may burn rapidly with flare burning effect.
- Powders, dusts, shavings, borings, burlings or cuttings may explode or burn with explosive violence.
- Substance may be transported in a heated form at a temperature that may be above its flash point.
- May re-ignite after fire is extinguished.

HEALTH

- Fire may produce irritating and/or toxic gases.
- Contact may cause burns to skin and eyes.
- Contact with molten substance may cause severe burns to skin and eyes.
- Fume from fire control may cause irritation.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE** Telephone Number on Shipping Paper (HBI, II Shipping Paper not available or no number, refer to appropriate telephone number listed on the inside back cover).
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.

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 100 meters (330 feet).
- **Fire**
- If large spill or leak needs to be isolated in a fire, ISOLATE for 100 meters (330 feet) in all directions; also consider initial evacuation for 300 meters (1000 feet) in all directions.

EMERGENCY RESPONSE

FIRE

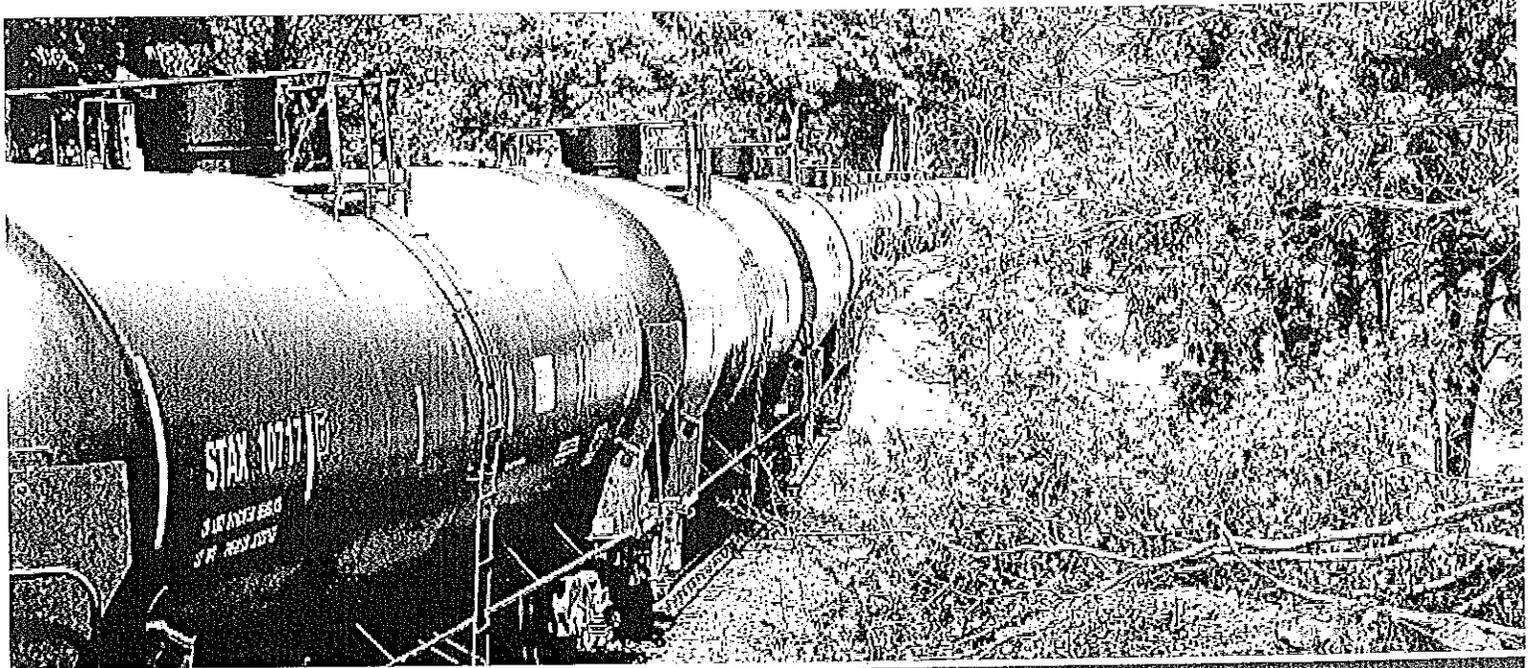
- **Small Fire**
- Dry chemical, CO₂, sand, water spray or regular foam.
- **Large Fire**
- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- **Fire Involving Metal Pigments or Pastes (e.g. "Aluminum Paste")**
- Aluminum Paste fires should be treated as a combustible metal fire. Use DRY sand, graphite powder, dry sodium chloride based extinguishers, D-1[®] or Met-L-X[®] powder.
- A.S.D. See GUIDE 170.
- **Fire Involving Tanks or Car-Trailer Loads**
- Cool external surfaces with flooding quantities of water until well after fire is out.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- Withdraw immediately in case of rising sound from venting safety devices or destruction of tank.
- ALWAYS stay away from tanks involved in fire.

SPILL OR LEAK

- **ELIMINATE** all ignition sources (no smoking, flames, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- **Small Dry Spill**
- With clean dry cloth place material into clean, dry container and cover loosely. Move containers from spill area.
- **Large Spill**
- Wet down with water and allow for later disposal.
- Prevent entry into waterways, sewers, basements or confined areas.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical services.
- Give 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.
- Removal of selected clothing material from skin requires medical assistance.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the product(s) involved and take precautions to protect themselves.



Acknowledgments

CSX would like to thank the many individuals, associations, companies, shippers, and refiners who contributed to the creation of this document. Their knowledge, insight, experience and dedication in helping to provide emergency first responders with useful training information is commendable. While several shippers and receivers contributed product and safety information, we would like to specifically recognize:

American Petroleum Institute

Association of American Railroads

ARCADIS U.S. Inc.

Center for Toxicology and Environmental Health

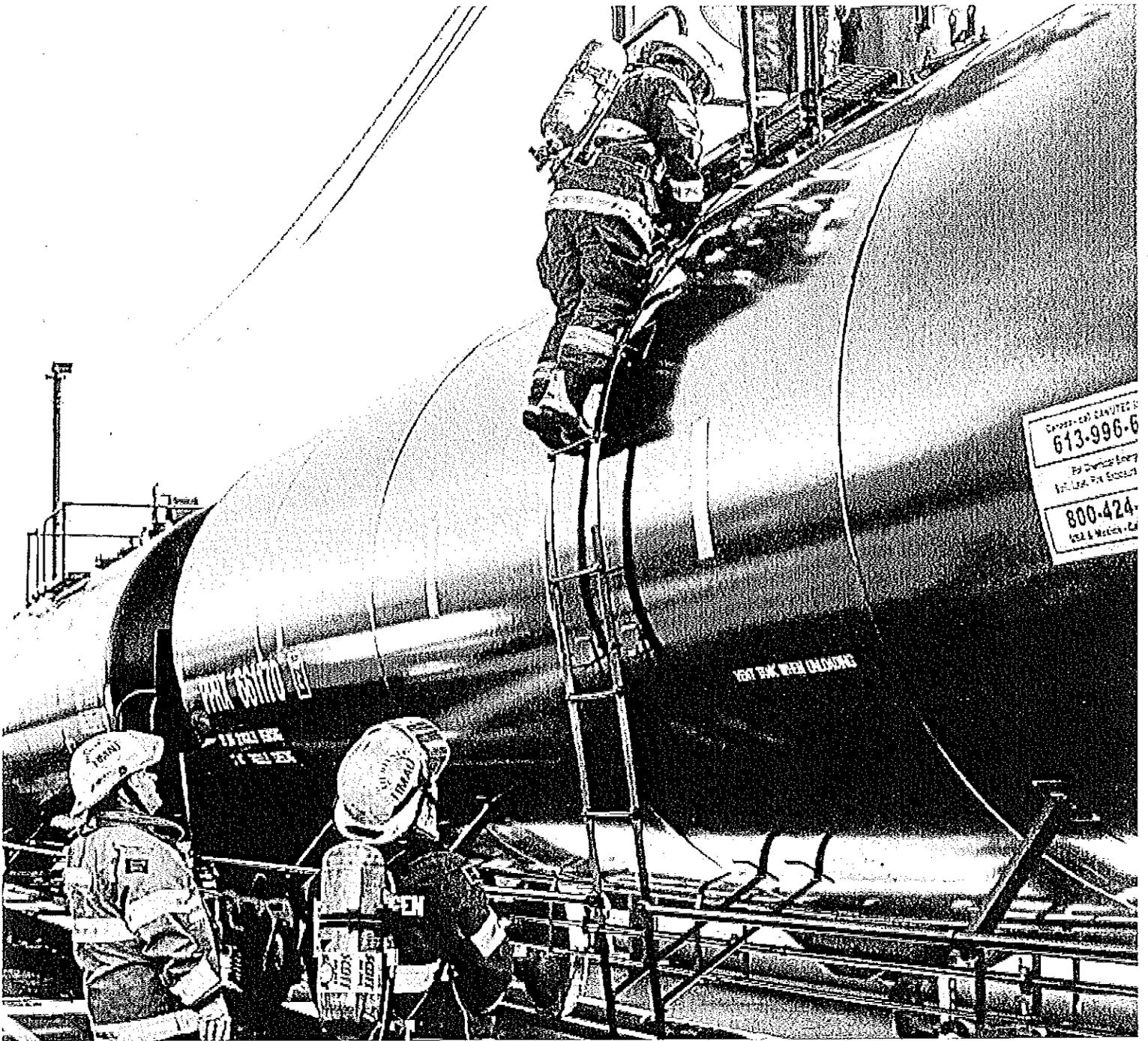
CHEMTREC

Fertilizer Institute

Renewable Fuels Association

Sulfur Institute

TransCAER



[CSX]

CSX Public Safety Coordination Center (PSCC)
800-232-0144