

OPPAL

OKLAHOMA PIPELINE AWARENESS LIAISON

2018 EMERGENCY RESPONDER PIPELINE PLANNING INFORMATION



On Behalf Of:
Oklahoma Pipeline Awareness Liaison, Inc.

Sponsor Listing

Assiduous Energy, LLC
Baron Exploration Co. / Citation Pipeline
BKEP Pipeline, L.L.C.
CenterPoint Energy
Centurion Pipeline, L.P.
Chesapeake Energy Corporation
Continuum Midstream, L.L.C.
Enable Gas Gathering, LLC
Enable Gas Transmission, LLC
Enable Midstream Partners, LP
Enable Oklahoma Intrastate Transmission, LLC
Grove Municipal Service Authority
Jayhawk Pipeline, LLC
Kinder Morgan, Inc., El Paso Natural Gas Pipeline
Kinder Morgan, Inc., Natural Gas Pipeline of America
Kinder Morgan, Inc., Scissortail
Kinder Morgan, Inc., Southern Dome
Nemaha Gas Gathering Systems, LLC
NEOKC Pipeline, LLC
Northern Natural Gas Company
Oklahoma Natural Gas
ONEOK, INC., Field Service Company, LLC
ONEOK, INC., Gas Transportation
ONEOK, INC., NGL Pipeline, LLC
Plains Pipeline, L.P.
Rose Rock Midstream
SandRidge Energy
SemGas, LP
Stephens Energy Group, LLC
Stephens Production Company
Superior Pipeline
TRP-OK Properties, LLC
White Cliffs, LP
Williams

For more information about each operator's pipeline system and specific locations within your area, go to:
okpipelineawareness.com/operator-profiles.



To: ALL EMERGENCY RESPONDERS
From: Oklahoma Pipeline Awareness Liaison
Re: Pipeline Emergency Reponse Planning Information

This material is provided to your department as a reference in case you are called upon to respond to an emergency on a pipeline in your area.

For more information on these pipeline companies, please contact each company directly. You will find contact information for each company represented throughout the material.

This information only represents the pipeline and/or gas companies who work with our organization to provide training and communication to emergency response agencies such as yours. There may be additional pipeline operators in your community that are not represented in this document.

For information and mapping on other transmission pipeline operators please visit the National Pipeline Mapping System at www.npms.phmsa.dot.gov.

For information on other gas and utility operators please contact your appropriate state commission office.

The product information sheets contained herein only represent the hazardous materials carried by the operators represented.

Further product-specific information may be found in the US Department of Transportation (DOT) *Emergency Response Guidebook for First Responders*.

The Guidebook is available at <http://www.phmsa.dot.gov/hazmat/library/erg>.

PIPELINE OPERATOR EMERGENCY CONTACT LIST

Assiduous Energy, LLC	580-977-7813
Baron Exploration Co. / Citation Pipeline	405-341-1779
BKEP Pipeline, L.L.C.	855-999-2537
CenterPoint Energy	888-876-5786
Centurion Pipeline, L.P.	800-765-8695
Chesapeake Energy Corporation	800-566-9306
Continuum Midstream, L.L.C.	877-587-0026
Enable Gas Gathering, LLC	800-522-8048
Enable Gas Transmission, LLC	800-474-1954
Enable Midstream Partners, LP	800-474-1954
Enable Oklahoma Intrastate Transmission, LLC	800-522-8048
Grove Municipal Service Authority	918-801-5404
Jayhawk Pipeline, LLC	888-542-9575
Kinder Morgan, Inc., El Paso Natural Gas Pipeline	800-334-8047
Kinder Morgan, Inc., Natural Gas Pipeline of America	800-733-2490
Kinder Morgan, Inc., Scissortail	855-737-9555
Kinder Morgan, Inc., Southern Dome	855-737-9555
Nemaha Gas Gathering Systems, LLC	479-783-4191
NEOKC Pipeline, LLC	405-239-6001
Northern Natural Gas Company	888-367-6671
Oklahoma Natural Gas	800-458-4251
ONEOK, INC., Field Service Company, LLC	888-675-3302
ONEOK, INC., Gas Transportation	888-215-5137
ONEOK, INC., NGL Pipeline, LLC	1-800-666-9041
Plains Pipeline, L.P.	800-708-5071
Rose Rock Midstream	800-522-3883
SandRidge Energy	877-435-7080
SemGas, LP	800-522-3883
Stephens Energy Group, LLC	479-783-4191
Stephens Production Company	479-783-4191
Superior Pipeline	866-904-4514
TRP-OK Properties, LLC	405-535-9402
White Cliffs, LP	800-522-3883
Williams	855-427-2875

Note: The above numbers are for emergency situations. Additional pipeline operators may exist in your area. Visit the National Pipeline Mapping System at www.npms.phmsa.dot.gov.

OKLAHOMA ONE-CALL SYSTEM, INC.

PHONE NUMBER

Call Okie.....811

National Pipeline Infrastructure

Pipelines run through all of our communities – places that we live, work, and play. Pipelines are used to transport the nation's energy resources.

More than two-million miles of gathering, transmission and local distribution pipelines move natural gas and hazardous liquids such as crude oil and refined products from areas of production to consumers and market centers.

This vast network of lines serves as the safest, most economic and reliable way to move energy supplies to consumers, manufacturers or electric generation facilities.

Types of Pipelines

- Gathering pipelines collect products from sources, including wells and shipping tankers for oil or liquefied natural gas (LNG). These systems move the product to storage, processing facilities (such as treatment for gas or refining of petroleum) or transmission pipelines.
- Transmission pipelines transport large quantities of hazardous liquids or natural gas over longer distances. Transmission lines deliver natural gas to power plants, large industrial customers, and communities for further distribution. Petroleum transmission lines deliver crude oil to refineries. Once processed, the refined products are then transported to markets (such as airports or terminals) where fuel oils and gasoline are loaded into trucks for local delivery.
- Distribution pipelines consist of main and smaller service lines that deliver gas to businesses and homes throughout a municipality.
- Storage facilities are gas pipeline facilities that store natural gas in an underground facility including:
 - A. Depleted hydrocarbon reservoir
 - B. An aquifer reservoir; or
 - C. A solution-mined salt cavern reservoir

Guide Overview

Will you be ready if disaster strikes?

As an emergency responder it is crucial you have the training and information necessary to respond to possible and known emergencies. The pipeline industry is dedicated to providing this information through on-going communication, training and resources. The information within this guide will provide a foundation for additional communication and interaction between emergency responders, pipeline operators and other stakeholders.

This guide is divided into three sections which are highlighted through the use of different colors.

Key information to be used during an emergency

Guidance or reference material on a particular issue

Pipeline industry and operator information

Emergency Preparedness

Pipeline Operators take necessary and on-going steps to prepare their personnel and local emergency responders for a potential emergency situation related to a pipeline or related facilities. These efforts include providing communication, materials, training and outreach to emergency responders and other stakeholders who may be involved in responding to an incident. Additionally, operators develop emergency response plans, identify resources and provide training to their employees in order to prepare for emergency situations.

Information provided in this guide, as well as information exchanged during in-person meetings between operators and emergency responders, and mock drills illustrating the potential conditions of a release, assist emergency responders in the event a pipeline emergency does occur.

Preparing for a potential emergency will assist with protecting the health and safety of those impacted in addition to minimizing the overall impacts of a release on a community and environment if one was to occur.

This guide includes information on the:

- Different types of pipelines and the commodities transported
- Signs of a potential pipeline release
- Measures pipeline operators take to ensure the integrity of their systems
- Training and educational resources available to emergency responders

Guidance for Dispatchers

Dispatchers play a critical role in responding to and coordinating the initial response to a pipeline emergency. Dispatchers are often the first people contacted with general information about an emergency, sometimes receiving only clues about a pipeline release. Dispatchers should be familiar with:

- ◇ Pipelines in their communities
 - The names of the operators including general and emergency contact information
 - The types of product(s) transported
 - The general location of the pipeline
- ◇ The signs of a potential release
- ◇ Information needed during an emergency
- ◇ Steps to take in the event of a pipeline release or if emergency is suspected or confirmed

In the event of an emergency a dispatcher should:

Ask the caller for information relating to the:

- Caller's location
- Contact Information of the person calling
- Possible immediate danger to the caller
- Facts relating to the emergency location, such as description of event, people involved, injuries, information about pipeline(s) in the area

Then:

- Direct the caller to take or avoid specific actions
- Help coordinate the initial response by making contact with responders and pipeline operator(s).

Note: Refer to NENA Pipeline Emergency Operations Standard 56-507 at www.nena.org for more detailed information.

Steps to Take During a Pipeline Emergency

In the event of a pipeline incident, emergency responders should take the following steps:

1 Assess the Situation

■ Before you rush onto the scene, ensure the area is safe.

- Determine the wind direction
- Park your vehicle and approach the scene from an upwind or crosswind location
 - Do not park over manhole or storm drain
 - Do not drive or walk into vapor clouds or puddles of liquid
- Eliminate potential ignition sources such as vehicle engines, cigarettes, electronic devices or sparks
- Secure the area and deny entry to those other than authorized personnel.

Determine or evaluate the following:

- What type of products are being released? (see page 8)
- Is there a fire, spill or leak?
- What are the weather conditions?
- What is the terrain like?
- Who and what is at risk- people, the environment and/or property?
- Is there a vapor cloud?
- What resources are available/needed?
- What can be done immediately?

■ Once the initial assessment has been conducted:

- Notify the railroad authority of any vapor clouds over or near a railway
- Establish an escape route in case the situation deteriorates
- Activate the National Incident Management System (NIMS) and Incident Command System, if appropriate
- Call 811 to send an emergency notification to other pipeline operators in the area
- Evaluate atmospheric conditions using monitoring equipment and determine whether it is safe to enter the area. If air monitoring equipment is not available, secure the area and wait for pipeline responders

2 Protect the Public

■ Isolate the public

- Secure the area - controlling crowds and traffic
- Evacuate the area based on the type of incident and the existing or potential hazards
- Establish hot, warm and cold control zones

■ Rescue and evacuation

- Evacuate or shelter-in-place as necessary and provide on-going communication to those impacted
- Provide medical assistance where needed
- Enter area only when wearing appropriate personal protective equipment

■ Prevent ignition of materials

- Do not do anything that could cause a spark
- Prevent perimeter or secondary fires from starting or spreading

Information to relay to the public:

Do

- Avoid contact with the escaping material
- Immediately leave the area on foot in an upwind and crosswind direction
- Notify the appropriate emergency response agencies and dispatch centers
- Keep others away from the area

Do Not

- Do anything that could cause a fire or create a spark including:
 - Start an engine- if engine races or stops, do not attempt to restart
 - Turn switches on or off or
 - Use a phone, unless in a safe area
- Attempt to stop the material from leaking, shut valves or put out a fire
- Move downwind or travel into a vapor cloud

3

Determine the Variables

Leak Control

Each pipeline emergency will pose unique variables that must be considered.

- Before taking action to place water on fires or spills, contact the pipeline operator involved - combining water with some materials may cause a negative reaction and cause the situation to degrade further
- Be conscious of flammability, toxicity and oxygen deficient atmosphere, If applying water, be aware of containment issues throughout the initial response and ongoing emergency
- Anticipate the potential, short and long-term impacts of the incident
- Consult with operator before excavating and creating barriers to prevent any liquid from traveling away from the initial impacted location, water sources and other sensitive areas
- Avoid any fumes, smoke and vapors from released material
- Do not come into contact with escaping product.

Do not operate pipeline equipment, including valves, without explicit approval from the operator - turning valves or operating components could result in greater damage or escalate the emergency situation.

Vapor Control

- Avoid combustion of gases by eliminating all ignition sources
- **Do Not** ignite a vapor cloud - only qualified pipeline personnel should perform this task
- Be conscious of buildings or structures that are ventilated by force - this type of ventilation can increase amount of vapors in the structure, resulting in a higher concentration of flammable gases

Fire Control

- Let the primary fire burn, extinguishing a primary fire can result in re-ignition
- Limit the spread of any fire by protecting surrounding structures, equipment and property
- Once product is identified, use the Emergency Response Guidebook for fire fighting tactics.

Caution: Burning petroleum products will not explode. If the fire is extinguished, gas or vapor will collect and could explode if re-ignited by a secondary fire.



If you have not already established communication with the pipeline operator, establish contact with them as soon as possible once you have assessed the emergency situation and insured the safety of other responders and the impacted community. Operators can be identified by:

- A pipeline marker, which will identify the product, operator and emergency phone number.
- Dialing 8-1-1 and giving them your location. The Center will provide you a list of operators in the area.
- Transmission operators can also be determined through the National Pipeline Mapping System (www.npms.phmsa.dot.gov).

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Work with Pipeline Operator

When you contact the pipeline operator, the representative will dispatch the appropriate personnel to the scene.



■ **Relay as much information as possible to the operator**

- Your contact information
- Emergency location
- Size, characteristics and behavior of the incident (liquid, vapor, fire)
- Any facilities that need additional attention—schools, hospitals, nursing homes, etc.
- Any known injuries
- Other emergency response agencies on scene
- Notify of any changes in the scene
- Be prepared to maintain contact with the pipeline

When the pipeline operator's arrive, they will identify themselves, establish contact with the incident commander, and may request continued assistance with evacuation, traffic control and area security. Pipeline representatives are trained in incident command and will work with emergency officials to determine when the incident is over.

■ **As an emergency responder:**

- Designate the appropriate Incident Commander
- Eliminate, and continuously monitor for ignition sources
- Support the activities of pipeline personnel by providing necessary rescue and medical professionals, conducting voluntary or mandatory evacuations as well as any required traffic control.
- Monitor the atmosphere in the repair and containment areas

■ **Work jointly with the operator to:**

- Review whether it is safe to approach the incident area
- Determine whether the area of the incident needs additional barricades, booms or containment devices
- Evaluate whether the affected public may return to their homes or the area

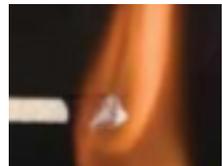
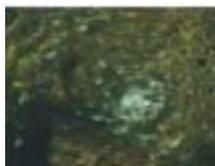
Leak Recognition

**Trust your senses:
Sight, Smell & Sound**

■ **Do you see:**

- Fire or explosion
- An accumulation of liquid on the ground
- A vapor cloud or mist
- Dust blowing or liquid bubbling from an unexpected area
- Discolored vegetation in an otherwise green area

- When first produced, natural gas is considered to be a colorless, odorless gas. However, in some production areas, raw natural gas will emit the scent of hydrocarbons.
- It is not until natural gas is injected with mercaptan when it enters into a local distribution system that it smells like rotten eggs or a recently lit match. Mercaptan emits a pungent odor, designed to draw attention to a leak.



■ **Do you smell:**

- An odor like oil, gasoline, chemicals or rotten eggs
- Hazardous liquids, such as raw crude oil, refined products and highly-volatile liquids including butane, propane, ethane as well as hydrogen sulfide smell similar to hydrocarbons chemicals or rotten eggs.

■ **Do you hear:**

- Blowing
- Hissing
- Roaring

PRODUCT CHARACTERISTICS

ERG#	Product	Description	Health & Fire Hazards	Response
ERG 115	Natural Gas	Leak Type: Gas Vapor: Lighter than air. Very flammable. A white vapor cloud may be visible near the site of a leak.	Health Hazards: Extremely high concentrations may cause irritation or asphyxiation. Possible presence of Hydrogen Sulfide (H ₂ S), a toxic gas. Fire Hazards: Extremely flammable and easily ignited by heat, sparks or flames.	Secure the area Let the primary fire burn Eliminate secondary fires
ERG 115	Highly Volatile Liquids (HVLs)- Natural Gas Liquids, Liquid Petroleum Gas (LPGs), Ethane, Propane, Butane, etc .	Leak Type Liquid/Gas Vapor: Heavier than air. Very flammable. A white vapor cloud may be visible near the site of a leak.	Health Hazards: Respiratory tract irritant; may cause central nervous system effects. Fire Hazards: Extremely flammable liquid or vapor; vapors may accumulate in low areas and travel considerable distance to ignition source.	Evacuate the area Set up barricades Eliminate ignition sources
ERG 115	Carbon Dioxide (CO ₂)	Leak Type: Gas Vapor: Heavier than air. If there is a leak in a Carbon Dioxide (CO ₂) pipeline the product will become very cold when contact with the outside atmosphere is made. The area around the leak may look frozen or covered in frost. In wet areas, bubbling water or a muddy looking area may indicate a leak.	Health: Vapors may cause dizziness or asphyxiation without warning. Contact with Carbon Dioxide (CO ₂) may cause burns, severe injury and/or frostbite. Fire: Nonflammable gas. Containers of Carbon Dioxide (CO ₂) may explode when heated and ruptured cylinders may rocket.	Evacuate the area Set up barricades
ERG 128	Crude Oil & Refined Products: Gasoline, Diesel, Jet Fuel, Heating Oil, etc.	Leak Type: Liquid Vapor: Heavier than air. Can be flammable. Dark brown spots on the ground, dead vegetation or an oily sheen on top of the ground or floating on the surface of a body of water may indicate the presence of a leak in a crude oil pipeline system.	Health: Irritation of the eyes and skin may occur with exposure. Vapors may cause central nervous system effects. Possible presence of Hydrogen Sulfide (H ₂ S), a toxic gas. Fire: Crude oil is an extremely flammable liquid or vapor that is heavier than air. May accumulate in low areas, and may travel considerable distances to an ignition source.	Do not extinguish with water Isolate the area Eliminate secondary fires

OTHER HAZARDS

ERG 117	Hydrogen Sulfide (H ₂ S, Sour Gas, Poison Gas)	A colorless gas at atmospheric temperatures and pressure can be found in natural gas and petroleum crude oil. Flammable, toxic and heavier than air. Will settle, particularly in low lying areas. Hydrogen Sulfide (H ₂ S) causes a foul odor in small concentrations but paralyzes the sense of smell in higher concentrations. If H ₂ S is present, leave the area immediately. Hydrogen Sulfide (H ₂ S) can be fatal in higher concentrations.
ERG 115	Landfill Gas	Gases are formed in a landfill when buried wastes decompose (breakdown by bacteria) or volatilize (change from a liquid or solid to a vapor). Methane is the main chemical in landfill gas and it is highly flammable. If a spark is present and enough methane is mixed into the air, a fire may occur. Breathing methane, however, is only hazardous if it is present at levels high enough to decrease the amount of oxygen in the air. The adverse health effects are due to a lack of oxygen, not by breathing the methane gas itself. In a building, methane would be a fire hazard at levels much lower than those that could cause breathing problems.

SEE CURRENT ERG FOR EXPANDED RESPONSE

A guidebook intended for use by first responders during the initial phase of a transportation incident involving dangerous goods/hazardous materials

2016

EMERGENCY RESPONSE GUIDEBOOK



U.S. Department
of Transportation
**Pipeline and
Hazardous Materials
Safety Administration**



Transport
Canada

Transports
Canada

SCT

SECRETARIAT DE
CÉRAMIQUES ET
TRANSPORTS



POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **EXTREMELY FLAMMABLE.**
 - Will be easily ignited by heat, sparks or flames.
 - Will form explosive mixtures with air.
 - Vapors from liquefied gas are initially heavier than air and spread along ground.
- CAUTION: Hydrogen (UN1049), Deuterium (UN1957), Hydrogen, refrigerated liquid (UN1966) and Methane (UN1971) are lighter than air and will rise. Hydrogen and Deuterium fires are difficult to detect since they burn with an invisible flame. Use an alternate method of detection (thermal camera, broom handle, etc.)**
- Vapors may travel to source of ignition and flash back.
 - Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
 - Containers may explode when heated.
 - Ruptured cylinders may rocket.

HEALTH

- Vapors may cause dizziness or asphyxiation without warning.
- Some may be irritating if inhaled at high concentrations.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire may produce irritating and/or toxic gases.

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 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Keep out of low areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.
- Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 800 meters (1/2 mile).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE**FIRE**

- **DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.**

CAUTION: Hydrogen (UN1049), Deuterium (UN1957) and Hydrogen, refrigerated liquid (UN1966) burn with an invisible flame. Hydrogen and Methane mixture, compressed (UN2034) may burn with an invisible flame.

Small Fire

- Dry chemical or Carbon Dioxide (CO₂).

Large Fire

- Water spray or fog.
- Move containers from fire area if you can do it without risk.

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 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.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- Prevent spreading of vapors through sewers, ventilation systems and confined areas.
- Isolate area until gas has dispersed.

CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

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.
- Clothing frozen to the skin should be thawed before being removed.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

EMERGENCY RESPONSE

HEALTH

- **TOXIC; Extremely Hazardous.**
- May be fatal if inhaled or absorbed through skin.
- Initial odor may be irritating or foul and may deaden your sense of smell.
- Contact with gas or liquefied 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

- These materials are extremely flammable.
- May form explosive mixtures with air.
- May be ignited by heat, sparks or flames.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Vapors may travel to source of ignition and flash back.
- Runoff may create fire or explosion hazard.
- Cylinders exposed to fire may vent and release toxic and flammable gas through pressure relief devices.
- Containers may explode when heated
- Ruptured cylinders may rocket

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 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 (sewers, basements, tanks).
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical 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 fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protective Action Distances.

Fire

- If tank, railcar or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE**FIRE**

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

Small Fire

- Dry chemical, Carbon Dioxide (CO₂), 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.
- 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 discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

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.
- 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.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Isolate area until gas has dispersed.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocked 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.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- 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.

POTENTIAL HAZARDS

HEALTH

- Vapors may cause dizziness or asphyxiation without warning.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.

FIRE OR EXPLOSION

- **Non-flammable gases.**
- Containers may explode when heated.
- Ruptured cylinders may rocket.

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 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 (sewers, basements, tanks).
- 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.
- Always wear thermal protective clothing when handling refrigerated/cryogenic liquids or solids.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 100 meters (330 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**

- Use extinguishing agent suitable for type of surrounding fire.
- Move containers from fire area if you can do it without risk.
- 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 discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Allow substance to evaporate.
- Ventilate the area.

CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

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.
- Clothing frozen to the skin should be thawed before being removed.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm 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**HEALTH**

- **TOXIC; may be fatal if inhaled, ingested or absorbed through skin.**
- Vapors are extremely irritating and corrosive.
- Contact with gas or liquefied 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 ignite readily.
- 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 and release toxic and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

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 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 (sewers, basements, tanks).
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical 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 fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION**Spill**

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY"

Fire

- If tank, railcar or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE**FIRE****Small Fire**

- Dry chemical, Carbon Dioxide (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 discoloration of tank.
- 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, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, 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.
- Isolate area until gas has dispersed.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocked 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 frosted 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 (UN1052), 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.

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.
- Substance may be transported hot.
- For UN3166, if Lithium on batteries are involved, also consult GUIDE 147.
- **If molten aluminum 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.
- Runoff from fire controls or dilution water 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.**
- 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.
- Keep out of low areas.

PROTECTIVE CLOTHING

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

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters

Fire

- If tank, railcar or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE**FIRE**

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

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

Small Fire

Dry chemical Carbon Dioxide (CO₂) water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- **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 convert with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spill

- 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.
- 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 adhering to skin.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Additional Information

For more information about each pipeline operator's pipeline system and specific locations within your area, go to: <http://okpipelineawareness.com/operator-profiles>



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