

# EMERGENCY RESPONDER INFORMATION

- **Ammonia is a Toxic Gas**
- When released can come out as liquid and as a vapor cloud at the same time.
- Vapor cloud can be heavier than air
- Vapor cloud can be white or invisible
- Vapors and liquid can follow terrain or wind direction
- Pipeline can continue to release dangerous amounts for hours to several days

# EMERGENCY RESPONDER TACTICS

- Protect the public:
  - Use ERG to help establish minimum zones
  - Evacuate or Shelter in Place
  - Block roads/deny entry
  - **Consider using emergency alert system**
- Monitor winds and terrain
- Shelter-in-Place tactics for people near cloud:
  - Shut off heat/air
  - Go into bathroom
  - Wet towel under door
  - Turn on shower and sinks
  - Breathe through wet washcloth

# RESPONDER SAFETY!

- Approach area with windows down and be prepared to back away
- Know cloud location, wind direction, roadblock areas, routes of approach.
- Do not approach or drive through vapor clouds
- Approaching leaking valve sites or entering vapor clouds is extremely dangerous!
  - Perform a risk/benefit analysis before taking any actions as entering clouds requires special equipment and training and can be life threatening to responders.

### 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.
- For UN1005: Anhydrous ammonia, at high concentrations in confined spaces, presents a flammability risk if a source of ignition is introduced.

#### 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).**
- 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, 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

**Small Fire**

- Dry chemical or CO<sub>2</sub>.

**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.

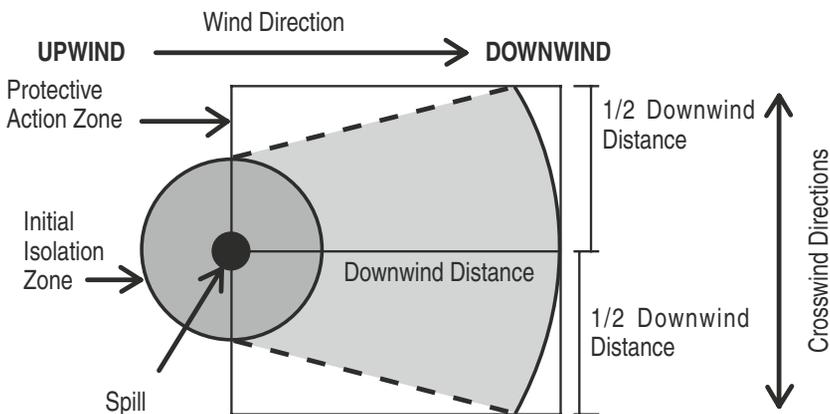
## FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- 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 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 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 with large amounts of water. For skin contact, if calcium gluconate gel is available, rinse 5 minutes, then apply gel. Otherwise, continue rinsing until medical treatment is available. For eyes, flush with water or a saline solution for 15 minutes.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

distance shown in Table 1. Protective actions are those steps taken to preserve the health and safety of emergency responders and the public. People in this area should be evacuated and/or sheltered-in-place.

- (6) Initiate Protective Actions to the extent possible, beginning with those closest to the spill site and working away from the site in the downwind direction. When a water-reactive TIH (PIH in the US) producing material is spilled into a river or stream, the source of the toxic gas may move with the current or stretch from the spill point downstream for a substantial distance.

The shape of the area in which protective actions should be taken (the Protective Action Zone) is shown in this figure. The spill is located at the center of the small circle. The larger circle represents the INITIAL ISOLATION zone around the spill.



**NOTE 1:** See “Introduction To Green Tables - Initial Isolation And Protective Action Distances” under “Factors That May Change the Protective Action Distances” (page 289)

**NOTE 2:** When a product in Table 1 has the mention “(when spilled in water)”, refer to Table 2 – Water-Reactive Materials which Produce Toxic Gases for the list of gases produced when these materials are spilled in water.

Call the emergency response telephone number listed on the shipping paper or the appropriate response agency as soon as possible for additional information on the material, safety precautions and mitigation procedures.

**TABLE 3 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES FOR LARGE SPILLS FOR DIFFERENT QUANTITIES OF SIX COMMON TIH (PIH in the US) GASES**

		Then <b>PROTECT</b> persons Downwind during													
		DAY					NIGHT								
		First ISOLATE in all Directions		Low wind (< 6 mph = < 10 km/h)	Moderate wind (6-12 mph = 10 - 20 km/h)	High wind (> 12 mph = > 20 km/h)	Low wind (< 6 mph = < 10 km/h)	Moderate wind (6-12 mph = 10 - 20 km/h)	High wind (> 12 mph = > 20 km/h)	Meters (Feet)	km (Miles)	km (Miles)			
<b>TRANSPORT CONTAINER</b>															
<b>Rail tank car</b>	<b>300</b>	<b>(1000)</b>	<b>1.7</b>	<b>(1.1)</b>	<b>1.3</b>	<b>(0.8)</b>	<b>1.0</b>	<b>(0.6)</b>	<b>4.3</b>	<b>(2.7)</b>	<b>2.3</b>	<b>(1.4)</b>	<b>1.3</b>	<b>(0.8)</b>	
Highway tank truck or trailer	150	(500)	0.9	(0.6)	0.5	(0.3)	0.4	(0.3)	2.0	(1.3)	0.8	(0.5)	0.6	(0.4)	
Agricultural nurse tank	60	(200)	0.5	(0.3)	0.3	(0.2)	0.3	(0.2)	1.3	(0.8)	0.3	(0.2)	0.3	(0.2)	
Multiple small cylinders	30	(100)	0.3	(0.2)	0.2	(0.1)	0.1	(0.1)	0.7	(0.5)	0.3	(0.2)	0.2	(0.1)	

**UN1005 Ammonia, anhydrous: Large Spills**

"+" means distance can be larger in certain atmospheric conditions