FOOD SERVICE COLD STORAGE WAREHOUSE

AMMONIA AWARENESS & SAFETY TRAINING

Generic School District
Maintenance Department, Facilities Division

Ammonia Awareness & Safety Training

Agenda:

- Hazard Awareness
- Emergency Action Plan
- Manual Alarm Signal Procedure
- Emergency Notification List

Ammonia Awareness & Safety Training

Outcomes:

- Better understanding of the hazards associated with Ammonia
- Prevention – exposure, and safety
- Emergency Action Plan
- Evacuation Procedure/Routes
- Manual Alarm Signal Procedure
  (For warehouse and freezer areas)
- Certification

Ammonia Awareness & Safety Training

Hazard Awareness

- Ammonia is used as the refrigerant in the refrigeration system at this Generic School District – Food Service Cold Storage facility.
- It is a closed system similar to your refrigerator at home. No emissions or leaks are expected. The majority of the equipment is located in the Ammonia Machine Room, which should be accessed by AUTHORIZED PERSONNEL ONLY.
- Ammonia processing equipment including spiral freezers and evaporator coils also use ammonia, and are located throughout the processing and cooler areas.

Ammonia Awareness & Safety Training

Hazard Awareness

- *Ammonia is not a poison. It has no cumulative toxic effects. Ammonia is potentially harmful, but is a self-alarming chemical.*
- *You can smell it at much lower concentrations than will hurt you.*
- *Typically, people can smell ammonia starting about 5 parts per million (ppm). It won't injure you or incapacitate you until at least 300 ppm (the published IDLH). The smell is similar to common household cleaners (ex. Windex).*

Ammonia Awareness & Safety Training

Hazard Awareness

- **Ammonia vapor has an affinity for water, including the body's moisture. If exposed, ammonia will tend to attack mucous membranes and naturally moist parts of the body (i.e. eyes, nose, mouth, underarms).**

- ***If you are exposed to ammonia, immediately flush the affected areas with cold water for at least 15 minutes!***

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Hazard Awareness

- If you smell ammonia, immediately move away from the area and alert your supervisor, who will alert the Facility Plant Manager (or other supervisor).
- If you observe an ammonia alarm (strobe light) or if a supervisor instructs you, proceed to the evacuation assembly area through the nearest facility exit.

Ammonia Awareness & Safety Training
Hazard Awareness

REMEMBER:

- **AMMONIA IS POTENTIALLY DANGEROUS, LEAVE IT TO THE EXPERTS!**
- **YOU CAN SMELL IT WELL BEFORE IT HURTS YOU!**
- **IF YOU NOTICE AN AMMONIA LEAK, ALERT A SUPERVISOR. IF YOU ARE EXPOSED, FLUSH WITH WATER FOR 15 MINUTES.**

Ammonia Awareness & Safety Training

Hazard Awareness

REMEMBER:

- **EVACUATE TO THE EMPLOYEE PARKING LOT (SOUTH SIDE OF BUILDING)!**

- **FOR MORE INFORMATION:**

  REFER TO THE FACILITY'S *PROCESS SAFETY MANAGEMENT/ RISK MANAGEMENT PLAN/ CHEMICAL ACCIDENT PREVENTION PROGRAM (PSM/RMP/CAPP)*

  THIS PLAN IS IN PLACE TO MANAGE THE RISKS OF AMMONIA. YOU CAN ALSO CONTACT THE FACILITY PLANT MANAGER.

Ammonia Awareness & Safety Training

Hazard Awareness – Did You Know

- Ammonia is used widely and in large quantities for a variety of purposes. More than 80% of ammonia produced is used for agricultural purposes; less than 2% is used for refrigeration. Use of ammonia is generally safe provided appropriate maintenance and operating controls are exercised. It is important to recognize, however, that ammonia is toxic, and can be hazardous to human health.

  It may be harmful if inhaled at high concentrations.

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Hazard Awareness – Did You Know

- The Occupational Safety and Health Administration (OSHA) Permissible Exposure Level (PEL) is 50 parts per million (ppm), 8-hour time-weighted average. Effects of inhalation of ammonia range from irritation to severe respiratory injuries, with possible fatality at higher concentrations. The National Institute of Occupational Safety and Health (NIOSH) has established an "Immediately Dangerous to Life and Health (IDLH)" level of 300 ppm for the purpose of respirator selection. Ammonia is corrosive and can burn the skin and eyes. Liquefied ammonia can cause frostbite.

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Hazard Awareness – Did You Know

- In refrigeration systems, ammonia is liquefied under pressure. Liquid ammonia that is accidentally released may "AEROSOLIZE" (i.e., small droplets may be released along with ammonia gas) and behave as a dense gas, even though it is normally lighter than air (i.e., it may travel along the ground instead of immediately rising into the air). This behavior may increase the potential for exposure of workers and the public.

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Hazard Awareness – Did You Know

- Although pure ammonia vapors are not flammable at concentrations of less than 16% they may be a fire and explosion hazard at concentrations between 16 and 25%. Mixtures involving ammonia contaminated with lubricating oil from the system, however, may have a much broader explosive range. Studies have been conducted regarding the influence of oil on the flammability limits of ammonia. These studies demonstrated that the flammability limits were reduced to as low as 8% by oil, depending on the variety of oil.

Ammonia Awareness & Safety Training

Hazard Awareness – Did You Know

- An important property of ammonia is its pungent odor. Odor threshold varies with the individual, but ammonia can usually be detected at concentrations in the range of about 5 ppm to 50 ppm. Concentrations above 100 ppm are uncomfortable to most people; concentrations in the range of 300 to 500 ppm will cause people to leave the area immediately.

Ammonia Awareness & Safety Training

Emergency Action Plan

Due to the possibility of accidental releases of ammonia from pipes, valves, seals, pumps, failures during ammonia delivery (such as hose leaks), etc., the following emergency evacuation procedures will be followed.

Awareness

1. All employees shall be alert to conditions and activities around their work area at all times.

2. Employees are responsible to recognize the presence of ammonia, the hazards of exposure to eyes, lungs, skin and internal digestive organs and have knowledge of basic first aid for those requiring it.

Ammonia Awareness & Safety Training

Emergency Action Plan

3. All welding equipment, electrical hand tools, etc., must be promptly shut down to lessen fire or explosion hazard.

4. Employees are responsible to cooperate fully with the established evacuation procedures, respond quickly and professionally when the alarm signal is sounded, to know escape routes and designated meeting location and to follow all directions and instructions of their supervisor. No employee is to remain in the area of contamination; only trained and properly equipped emergency response team members will do so.

Ammonia Awareness & Safety Training

Emergency Action Plan

Evacuation Procedure/Routes:

Evacuation Meeting Area Following Evacuation:

All personal must proceed to the:

South side parking lot, adjacent to the fence, between the east and west entrance gates of the facility. As the building is exited the windsocks on each corner of the building should be observed. Dependent on the wind direction, the meeting area may change. The new location will be determined by the supervisor on site.

Ammonia Awareness & Safety Training
Emergency Action Plan

Evacuation Procedure/Routes:

Alternate Evacuation Meeting Area Following Evacuation

In the event that designated meeting area becomes unsuitable because of unsafe or harmful conditions, please proceed to alternate designated meeting area. Alternate meeting area shall be to the south side of the facility beyond the fence and across Tropical Parkway.

Ammonia Awareness & Safety Training

Emergency Action Plan

Evacuation Procedure/Routes:

Office Area Located at Southwest Corner of Building

If you observe or hear an ammonia alarm (strobe light) proceed with caution through exit doors located at the far southwest corner of office area. Proceed to Evacuation Meeting Area. Upon reaching the designated meeting area report to your Supervisor. This will allow him/her to account for each individual listed on the daily sign-in sheet.

South Refrigerated Dock and South Wall Freezer

Proceed through exit doors on south side of building and to Evacuation Meeting Area.

Ammonia Awareness & Safety Training
Emergency Action Plan

Evacuation Procedure/Routes:

North Wall Freezer

Proceed through exit doors on north side of building. Proceed quickly to west side of the building and to the Evacuation Meeting Area.

Engine Room

Proceed through exit doors; go to south side of the building and to the Evacuation Meeting Area.

Ammonia Awareness & Safety Training
Emergency Action Plan

Evacuation Procedure/Routes:

Roof Areas

After descending from roof, proceed along the outside of the building to the South side of the building and to the Evacuation Meeting Area. Do not go inside the plant or in the direction of the Engine Room.

Note: Never go in the direction of the ammonia leak. Do not go inside the building or the Engine Room.

Ammonia Awareness & Safety Training

Emergency Action Plan

Evacuation Procedure/Accounting for Employees

- It is the responsibility of Field Supervisors to account for all employees at the Evacuation Meeting Area. Missing employees shall be located and brought to the Evacuation Meeting Area, without placing anyone in immediate danger.

- Emergency responders will be responsible for first aid and/or transportation of injured employees to medical facilities for medical treatment.

- Employees at the Evacuation Meeting Area will be given instructions to relocate to a different area away from the building if necessary.

Ammonia Awareness & Safety Training
Emergency Action Plan

Manual Alarm Signal Procedure
(for warehouse and freezer areas)

Although the Generic-Food Service Warehouse is equipped with ultra-sensitive electronic ammonia sensors throughout the warehouse and freezer area, an additional measure of security has been added.

Portable, canister-type sirens will be available in areas where employees are working. The Warehouse Supervisor will be responsible for making sure that portable sirens are located in areas easily accessible. He will also be responsible for designating one employee in each work area to have oversight of the sirens for that specific area.

Ammonia Awareness & Safety Training
Emergency Action Plan

Manual Alarm Signal Procedure
(for warehouse and freezer areas)

Upon occurrence of an accidental release of ammonia:

<u>Any employee may sound the alarm to begin the emergency evacuation procedure</u>

Designated employees shall also be responsible for alerting office staff of the evacuation in progress.

Ammonia Awareness & Safety Training

Emergency Notification List

In the event of an emergency or if you suspect the presence of ammonia notify your supervisor immediately. Supervisory personnel should use the phone numbers listed below in the order given in case of emergencies.

1. **911-Enhanced Emergency Number- Fire Department, EPA, HazMat Etc., as required**

2. **Generic Refrigeration Corporation**

   Office 1-800-901-4822

Ammonia Awareness & Safety Training
Emergency Notification List

3. Generic School District/Food Service Department
   - Office (702) 799-8123 Ext. 5205
   - Responsible Party (555) 454-9895 H (555) 378-6835 C
   - Responsible Party (555) 896-5718 H (555) 249-5677 C

4. Generic School District HVAC Department
   - Mechanic 1(555) 249-0606 C
   - Mechanic 2(555) 664-4182 C

Ammonia Awareness & Safety Training
Emergency Action Plan Training

Sign, date and then print your name on the Certification Documentation handed out at the beginning of this class.

This class WILL be put in (site data base), but credit will only be given if proper paperwork is signed and returned after the class is completed.

Ammonia Awareness & Safety Training

Questions?

Thank You