

Standard Operating Procedure

Ammonia

Section 1 – Lab-Specific Information

Department:	College of Engineering – Discovery Learning Labs
Date SOP was written:	10/29/2018
Date SOP was approved by PI/lab supervisor:	Click here to enter a date.
Principal Investigator:	Thomas Silman
Internal Lab Safety Coordinator/Lab Manager:	Thomas Silman
Lab Phone:	414-288-4602
Office Phone:	414-288-5423
Emergency Contact:	Thomas Silman 414-350-5432
Location(s) covered by this SOP:	<i>Engineering Hall – Discovery Learning Labs Complex</i>

Section 2 – Type of SOP:

Process Hazardous Chemical Hazardous Class

Section 3 – Physical / Chemical Properties

Physical / Chemical Properties:

CAS#: 7664-41-7

GHS Classification: Danger

Molecular Formula: NH₃

Form (physical state): Liquefied Compressed Gas

Color: Colorless

Section 4 – Potential Hazards

Ammonia is a compressed gas that is corrosive, toxic if inhaled, toxic to aquatic life, and may explode if heated. Exposure to ammonia gas causes severe skin burns and eye damage. Ammonia is corrosive to the respiratory tract.

Exposure Limits:

OSHA PEL (8 HR. TWA): 50.0 ppm

OSHA Short Term Exposure Limit: N/A

ACGIH TLV/TWA: 25.0 ppm

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Section 5 – Personal Protective Equipment (PPE)

Respirator Protection:

Respirators should be used only under any of the following circumstances:

- As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
- When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded.
- Regulations require the use of a respirator.
- An employer requires the use of a respirator.
- There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL)
- As PPE in the event of a chemical spill clean-up process
- Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by EH&S. Contact EH&S 8-8411 regarding respirator clearance.

Hand Protection:

Leather gloves for handling cylinders. Rubber or Neoprene gloves, and chemical resistant outer garment should be worn when connecting or disconnecting cylinders. Check the resources below for a more suitable glove.

NOTE: Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with Ammonia.

Refer to glove selection chart from the links below:

http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

Eye Protection:

Safety glasses for handling cylinders. Chemical goggles with full faceshield for connecting, disconnecting or opening cylinders.

Skin and Body Protection: Laboratory coats must be worn and be appropriately sized for the individual and buttoned to their full length. Personnel must also wear full length pants, or equivalent, and close-toed shoes. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle must not be exposed

Hygiene Measures: Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

Section 6 – Engineering Controls

Engineering Controls: The use of ammonia must be conducted in a properly-functioning chemical fume hood. The chemical fume hood must be approved and certified by EH&S and have a face velocity between 80 – 125 feet per minute. Inside the fume hood, keep these materials away from oxidizing agents, acids, and moisture/water.

- **Section 7 – First Aid Procedures**

- **If inhaled:**

- Remove person to fresh air. If not breathing administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

- **In case of skin contact:**

- Flush affected area with large quantities of water. Remove contaminated clothing immediately. If liquid comes in contact with skin, remove contaminated clothing and flush with plenty of lukewarm water for several minutes. Seek medical attention immediately.

- **In case of eye contact:**

- Flush eyes with large quantities of water. Seek medical attention immediately.

- **If swallowed:**

- Ingestion is not a likely route of exposure for Ammonia

Section 8 – Special Handling and Storage Requirements

- Always wear appropriate PPE when handling. Avoid contact with skin, eyes, and clothing. Avoid inhalation.
- Keep containers tightly closed. Store in a cool, dry and well-ventilated area.
- Incompatible with the following materials: oxidizing materials, bases.
- Contents under pressure
- Cylinders should be stored and upright and secure

Section 9 – Spill and Accident Procedures

Chemical Spill Dial **8-1911**

Immediately evacuate area and ensure others are aware of the spill. If there is an imminent threat of a fire, pull the nearest fire alarm station to evacuate the building and **dial 8-1911**. If the spill is minor and does not pose a threat to personnel, contact EH&S at 8-8411 during normal business hours (7 AM – 4 PM) for spill cleanup assistance (dial 8-1911 if spill occurs after hours and assistance is needed).

Section 10 – Medical Emergency

Life Threatening Emergency, After Hours, Weekends And Holidays:

Dial 8-1911

Non-Life Threatening Emergency:

Immediately report injury to supervisor and complete the First Report of Injury.

http://www.marquette.edu/riskunit/riskmanagement/documents/Employee_First_Report_of_Incident.pdf

Section 11 – Waste Disposal Procedures

Label Waste:

Make sure the waste container(s) is properly labeled; label should indicate all of the contents of the container. EH&S provides hazardous waste labels free of charge, contact dennis.day@marquette.edu to obtain labels.

Store Waste:

Store hazardous waste in closed containers, and in a designated area (flammable cabinet is recommended).

Dispose of Waste:

Complete a Chemical Waste Pickup Request Form to arrange for disposal by EH&S. Contact dennis.day@marquette.edu or visit the EH&S webpage for questions.

http://www.marquette.edu/riskunit/environmental/documents/waste_disposal_form.pdf

Section 12 – Safety Data Sheet (SDS)

A current copy of the SDS for Ammonia must be made available to all personnel working in the laboratory at all times. To obtain a copy of the SDS, refer to Marquette's MSDS library

http://www.marquette.edu/riskunit/environmental/documents/waste_disposal_form.pdf many manufacturers' SDSs can be found online on websites such as Sigma-Aldrich (<http://www.sigmaaldrich.com/united-states.html>) or Siri MSDS Index (<http://hazard.com/msds/>).

Section 13 – Protocol/Procedure

None at this time.

NOTE: Any deviation from this SOP requires approval from PI.

Section 14 – Documentation of Training

- Prior to conducting any work with Ammonia, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
- The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and a copy of the SDS provided by the manufacturer.
- The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last one year.

I have read and understand the content of this SOP:

Name	Signature	Date
Click here to enter text.		Click here to enter a date.
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