




## SOP for Water Reactive Compounds (Class I)

Water Reactive (Class I)	CAS number
ACETIC ANHYDRIDE	108-24-7
<i>(see SOP for Bases for additional water reactive class I compounds)</i>	

## Heading/Approval

<b>Building/Room(s) covered by this SOP:</b>	CD 186D, CD186A
<b>Department:</b>	Oto-HNS
<b>Principal Investigator Name:</b>	Dr.s Edwin W Rubel and Jennifer Stone
<b>Principal Investigator Signature/Date:</b>	 02/17/2022
<b>This SOP was created by (if not PI): Name/Title/Date/Signature/Date</b>	Robin Gibson, Lab Manager

## Section 1 – Chemicals and Hazards

Flammable liquids (Category 3), H226 Acute toxicity, Oral (Category 4), H302 Acute toxicity, Inhalation (Category 2), H330 Skin corrosion (Category 1B), H314 Serious eye damage (Category 1), H318

Corrosive to the respiratory tract.  
Lachrymator.,

**Reacts violently with water.**



## Section 2 – Process/Protocol

**Work under hood.**

- Do not inhale substance/mixture.
- Avoid generation of vapors/aerosols.

**Advice on protection against fire and explosion**

- Keep away from open flames, hot surfaces and sources of ignition.
- Take precautionary measures against static discharge.



**Hygiene measures**

- Immediately change contaminated clothing.
- Apply preventive skin protection.
- Wash hands and face after working with substance.

**Risk of explosion with:  
ethanol**

potassium permanganate

Strong oxidizing agents

perchloric acid

Nitric acid

**hydrogen peroxide**

chromium(VI) oxide

barium peroxide

peroxide compounds

ammonium nitrate with Nitric acid

Exothermic reaction with:

Ammonia

**Potassium hydroxide**

nitrates

**Sodium hydroxide**

Acetic acid, diluted

**Violent reactions possible with:**

Water

Possible formation of: acetic acid

**Lab specific info:**

Use this substance in the hood in either CD186A or CD186D wearing appropriate PPE as described below.

Do not let product enter drains: **Risk of explosion.**

Do not allow water to enter container because of violent reaction.

Waste material: arrange for pick-up with EH&S.

Leave chemicals in original containers.

No mixing with other waste.

Handle uncleaned containers like the product itself.

For additional information, consult MSDS

**NOTE:** Any deviation from this SOP requires approval from Principal Investigator.

**Section 3 – Environmental/Ventilation Controls**

Use of this material must be conducted in Fume Hoods located in CD 186A or CD186D.



## Section 4 –Personal Protective Equipment (PPE)

### General Hygiene Measures:

Avoid contact with skin, eyes, and clothing. Wash hands after removing PPE before breaks and immediately after handling the chemical. If **Acetic Anhydride** come(s) into contact with any PPE, the PPE shall be immediately removed and discarded properly. Any potentially exposed body parts should be washed immediately.

### PPE:

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Full contact Material:** butyl-rubber Sigma-Aldrich - 242845

#### Splash contact Material:

Latex gloves Minimum layer thickness: 0.6 mm Break through time: 60 min Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M) required

**Body Protection** Flame retardant antistatic protective clothing; a flame-resistant laboratory coat that is NFPA 2112-compliant should be worn.

**Respiratory protection** required when vapours/aerosols are generated.

**Skin and Body Protection.** Chemically compatible laboratory coats that fully extend to the wrist 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. The area of skin between the shoe and ankle must not be exposed.

**Hand Protection.** Hand protection **IS** required for the activities described in this SOP.

**Lab Specific information.** Use of nitrile gloves (from Genesee Scientific) will offer short-term splash protection when working with Acetic Anhydride. In the event of chemical contact, change gloves immediately.

Gloves must be inspected prior to use, including a check for pinholes.

Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands immediately after glove removal.

**Eye Protection.** ANSI Z87.1-compliant eye protection **IS** required for all work with substance(s). Ordinary prescription glasses will NOT provide adequate protection unless they also meet the Z87.1 standard and have compliant side shields. **When working with acetic anhydride wear tightly fitting, safety goggles.**

**Respiratory Protection.** Respiratory protection **NOT** required for the activities described in this SOP. *Work must be conducted in a fume hood.*



### Section 5 – Special Handling and Storage Requirements

- Clean the **fume hood** upon completion of tasks with dry paper towel.
- Do not store with incompatible chemicals listed above.
- Clean all contaminated surfaces with water and dry.
- Place all contaminated disposable items in appropriate laboratory waste for disposal.
- Non-disposable/re-usable utensils, glassware, and other surfaces contaminated with **acetic anhydride** must be decontaminated at the end of the laboratory work session. Complete this inside **the fume hood** before removing any of the items.
- When work is completed, remove gloves and wash hands with soap and water.

**Lab Specific Info:** Consult with your PI prior to carrying out procedures that involve acetic anhydride. Be aware of hazards including water reactivity and chemical incompatibility. Discuss appropriate PPE and waste/spill procedures.

### Section 6 – Spill and Accident Procedures

Chemical spills must be cleaned up as soon as possible by properly protected and trained personnel. All other persons should leave the area. Clean up spills using contents of the laboratory spill kit.

Do not attempt to clean up any spill if not trained or comfortable. Evacuate the area and call 911 on campus phone for help. If the spill is out of control, call 911. If a person is injured, exposed or suspected of being exposed, call 911. \*Follow EXPOSURE PROCEDURES (below).

-For large spills (larger than 100 ml) contact EHS. If in doubt, contact EHS. During normal business hours (Monday – Friday, 8 AM – 5 PM), call EH&S at 206.543.0467 for further assistance. If it is after hours, call 911 for further assistance. Tell them an **Acetic Anhydride** spill has occurred.

**Spill area must be cleaned up in the following manner:** Cautiously neutralize spilled liquid with sodium carbonate using spill kit located in CD186A or CD186D. Wash away remainder with plenty of water (extra personal protection: chemical protection suit including self-contained breathing apparatus).

Spill cleanup materials must be disposed of in the following manner: **double bag all waste in plastic bags labeled with the contents. Submit request to EH&S for pickup.**

Any spill incident requires the involved person or supervisor to complete and submit the Online Accident Reporting System (OARS) form within 24 hours (8 hours if serious injury or hospitalization) of the incident to EH&S. For questions on spill cleanup, contact EH&S spill consultants at 206-543-0467.

**Lab Specific Info:** Cautiously neutralize spilled liquid with sodium carbonate using spill kit located in CD186A or CD186D. Wash away remainder with plenty of water (extra personal protection: chemical protection suit including self-contained breathing apparatus).

**Exposures:** If a person is injured, exposed, or suspected of being exposed to **Acetic Anhydride**, follow procedures listed here:



### Perform First Aid Immediately

First aiders need to protect themselves. Show material safety data sheet to the doctor in attendance.

- **If inhaled**
  - After inhalation: fresh air.
    - Move out of contaminated area
  - Immediately call in physician.
  - If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
- **In case of skin contact**
  - In case of skin contact: Take off immediately all contaminated clothing.
    - Use the nearest safety shower for 15 minutes; stay under the shower and remove clothing; use a clean lab coat or spare clothing for cover-up.
  - Call a physician immediately.
- **For sharps injury (needle stick or subcutaneous exposure):**
  - scrub exposed area thoroughly for 15 minutes using warm water and sudsing soap.
- **In case of eye contact**
  - After eye contact: rinse out with plenty of water.
    - use the eye wash for 15 minutes while holding eyelids open.
  - Immediately call an ophthalmologist.
  - Remove contact lenses.
- **If swallowed**
  - After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. **Do not attempt to neutralise.**

### Get Help

- Call 911 or go to nearest Emergency Department (ED); provide details of exposure:
  - Agent
  - Dose
  - Route of exposure
  - Time since exposure
- Bring to the ED the SDS and this SOP
- Notify your supervisor as soon as possible for assistance
- Secure area before leaving; lock doors and indicate spill if needed

### Report Incident to Environmental Health & Safety

- Notify EH&S immediately after providing first aid and/or getting help. During business hours (M-F/8-5) call: 206-543- 7262. After hours call: 206-685-UWPD (8973) to be routed to EH&S staff on call.
- For all incidents and near misses, the involved person or supervisor completes and submits the UW Online Accident Reporting System (OARS) form within 24 hours (8 hours if serious injury or hospitalization).

**Section 7 – Waste Disposal Procedures**

Do not dispose down the drain: **risk of explosion.**

Collect waste in a clearly labeled glass or plastic container with a securely closed/screw top lid.

Call EHS for collection of waste material.

Chemical waste container guidance can be found here: <https://www.ehs.washington.edu/chemical/chemical-container-labels>.

For questions regarding chemical and hazardous chemical collection, visit the EH&S Hazardous Chemical Waste webpage (<https://www.ehs.washington.edu/chemical/hazardous-chemical-waste-disposal> ) or call 206.616.5835. Also listed there are contact numbers for hazardous waste disposal.

Collect waste in a clearly labeled glass or plastic container with a securely closed/screw top lid.

Clean up spills as described above and wipe down fume hood with plenty of water after each use.

**Section 8 – Special Precautions for Animal Use ( \_\_\_ Yes \_\_\_x No)**

N/A

<b>PARTICULARLY HAZARDOUS SUBSTANCE INVOLVED?</b>	<input checked="" type="checkbox"/> <b>YES:</b>	<b>Sections #9 to #11 are Mandatory</b>
	<input type="checkbox"/> <b>NO:</b>	<b>Sections #9 to #11 are Optional.</b>

**Section 9 – Approvals required**

All staff working with **acetic anhydride** must be trained on this SOP prior to starting work. They must also review the **acetic anhydride** SDS, and it must be readily available in the laboratory. All training must be documented and maintained by the PI or their designee.

**Section 10 – Decontamination**

Clean items using dry paper towels first, then wash with sudsy water and rinse with clean water.

**Section 11 – Designated Area**

Use of acetic anhydride is restricted to the fume hoods in CD 186A and CD 186D

**Section 12 – Documentation of Training (signature of all users is required)**

- Prior to using substances included in this SOP, laboratory personnel must be trained on the hazards described in this SOP, how to protect themselves from the hazards, and emergency procedures.
- Ready access to this SOP and to a Safety Data Sheet for each hazardous material described in the SOP must be made available in the lab space(s) where these substances are used.
- The Principal Investigator (PI), or Responsible Party, if the activity does not involve a PI, must ensure that their laboratory personnel have attended appropriate laboratory safety training (and refresher training where applicable).



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- Training must be repeated following **any** revision to the content of this SOP. Training **must be documented**. This training sheet is provided as one option; other forms of training documentation (including electronic) are acceptable but records must be accessible and immediately available upon request.

**I have read and understand the content of this SOP:**

Name	Signature	Date
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