**Standard Operating Procedure for Hazardous Chemicals Use**

**Chemical name: Formaldehyde and Formaldehyde Solutions. / Formalin**

**Synonyms: Formaldehyde and Formaldehyde Solutions. / Formalin**

**CAS Number: 500-00-0**

**Principal Investigator(s)       PI e-mail**

For chemical processes, return completed form sections 1-8 and Appendix to the Chemical Safety Committee (CSC) / US&A ([sop-approval@uwm.edu](mailto:sop-approval@uwm.edu))

If this is for IACUC Hazardous Chemical procedure, return completed sections 1-9 and Appendix to the Animal Care program ([acp@uwm.edu](mailto:acp@uwm.edu))

**Information on Chemical Purchasing Procedures are located on our website:** [**University Safety and Assurances Chemical Purchasing Procedure**](https://uwm.edu/safety-health/chemical-purchasing-process/)

1. **Submit a copy of the Safety Data Sheet(s) [SDS] with this form**

**The SDS is stored in the room in this location:**

1. **Chemical Concentration (as purchased)** **and Health and Physical Hazards:**

|  |  |
| --- | --- |
| **Concentration. As purchased** | 37% |
| **List all health and Physical Hazards** | **Found on the SDS section 2**  Flammable liquid and vapour.  Toxic if swallowed, in contact with skin or if inhaled.  Causes severe skin burns and eye damage.  May cause an allergic skin reaction.  Suspected of causing genetic defects.  May cause cancer.  Causes damage to organs (Eyes).  Harmful to aquatic life |
| **Known Incompatibilities** | Incompatible with oxidizing agents and alkalis. Reacts explosively with nitrogen dioxide at ca. 180C (356F). Reacts violently with perchloric acid, perchloric acid-aniline mixtures, and nitromethane. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA regulated carcinogen |
| **Hazardous Decomposition Products** | Hazardous Decomposition Products- Carbon Monoxide and Carbon Dioxide. |

1. **Authorized Use:**

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| Principal Investigator  Laboratory Manager  Post Doc  Employees  Graduate Students  Technical Staff  Undergraduate Student  Adult Volunteer  Other |

1. **Storage Information:**

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| **Chemical Storage Location** | Where will the chemical be used (building and room number) | **Storage**  **Requirement** |
| Area inspected regularly by |  | Refrigerator  Explosion Proof  Non-Explosion Proof  Flammable storage  Corrosive storage  Shelf  Locked cabinet  Locked Facility  Secondary containment  Closed, & labeled container  Other Keep container tightly closed in a dry and well-ventilated place.Containers which are opened must be carefully resealed and kept upright to prevent leakage.Storage class (TRGS 510): 3: Flammable liquids |

1. **Personal Protective Equipment [PPE]**

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| **Personal Protective Equipment Use** | **During Chemical Preparation** |
| Gloves  \*Check integrity of gloves before each use. | **Type** (Specify): **Nitrile** |
| Safety glasses (impact) |  |
| Safety goggles (splash) |  |
| Lab Coat |  |
| Apron |  |
| Dust Mask | Specify: N95  N100  Other |
| Respirator |  |
| Hearing Protection: |  |
| Other: (i.e. double glove, barrier cream) | Specifydouble glove, face shield |
| Describe how you will employ PPE, Engineering and Administrative controls | Check integrity of gloves. Double glove with thin nitrile gloves in case integrity is compromised. of outter glove. Heavier nitrile gloves may be worn. Face shields should be incorporated if possibility of splashing.  - Conduct all operations in fume hood or other sufficient exhaust ventilation. Exhaust ventilation other than fume hood should be approved by US&A  .- Training on proper chemical, sharps, and waste handling should be conducted with all employees. The OSHA Formaldehyde Standard requires UWM to ensure all employees, who are assigned to workplaces where there is exposure to formaldehyde, participate in a training program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training. US&A can assist with training for formaldehyde. UWM shall provide such information and training to employees at the time of initial assignment, and whenever a new exposure to formaldehyde is introduced into the work area. The training shall be repeated at least annually. Information about the content of the OSHA-required training can be obtained from the following web site http://www.uwm.edu/Dept/EHSRM/EHS/LAB/hcho.html. US&A can assist with setting up the training program.  - Spill trays should be used to asist in segregating formaldehyde from incompatibles as well as to contain any spillage. Perform operations is spill trays for ease of cleanup.  - Exposure monitoring will be conducted at initial start of operations and repeated when there is a change in the procedure, equipment, personnel, or control measures. Repeat monitoring is conducted if exposure exceeds either the Action Level (0.5 ppm 8-hour time weighted average) or the Short-Term Exposure Limit (2 ppm for 15 minute). |

1. **Engineering Controls**

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| Fume Hood  Laminar Flow Hood  Biosafety Cabinet  Snorkel/ Elephant Trunk  Glove Box  Vented Gas Cabinet  Other (includes but is not limited to; pressure relief valves, intrinsically safe hot plates. Automatic shut -offs) |

**Chemical Spill Procedure**

**Describe the spill cleanup protocol for the maximum volume of the chemical that would be in use at any one time. Refer to the SDS or guidance from University Safety and Assurances for procedures.** [**http://uwm.edu/safety-health/emergency/**](http://uwm.edu/safety-health/emergency/)

**Check all that apply and explain below:**

|  |
| --- |
| A spill kit or cleanup materials are present in each lab.  Specify special materials required for the chemical cleanup. **Inert material for absorbing- vermiculite, dry sand, earth**  Personnel are trained on spill cleanup procedure of each chemical and emergency contacts.  Proper personal protective equipment (PPE) available for spill cleanup. See #6 for PPE.  Emergency eyewash and/or safety shower located nearby (within 10 seconds) and unobstructed.  Personnel trained on eyewash/ shower location and operation  Eyewash/ shower inspected annually and activated weekly to verify operability.  Explain spill procedure: **ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in #5. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities (100 lbs.). Exposure monitoring may be required depending on location of spill (area with general ventilation) to determine respiratory protection** |

1. **Chemical Use Process**

**List each step of the procedure including the hazards associated with the step and controls that will be used to ensure safety. Be as specific as possible.**

**NOTE: Identify potential methods of human exposure to the chemicals during sample preparation. Also identify health hazard or routes(s) of entry into the body and explain how they affect the body.**

|  |  |  |
| --- | --- | --- |
| **Process Step** | **Hazards** | **Safety Controls** |
| *ex.) Transfer 5 ml of hydrofluoric acid to a plastic 50 ml beaker.* | *Corrosive, splash, fluoride ion*  *readily penetrates skin and bonds to calcium ions* | *Lab coat, splash goggles, face*  *shield, nitrile gloves- initial thin glove inside gauntlet glove* |
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1. **Animal Care and Use of Chemicals**

**Fill out this section *only* if you have an accompanying IACUC Procedure.**

1. **IACUC Procedure**

**Protocol Title:**       **Protocol Number(s):**

1. **Describe any Special Chemical and Carcass Disposal Requirement**

**Refer to the Waste Disposal Guidelines** [**http://uwm.edu/environmental-protection/disposal-guide/**](http://uwm.edu/environmental-protection/disposal-guide/) **or contact Environmental Protection (**[**hazwaste@uwm.edu**](mailto:hazwaste@uwm.edu)**) for guidance. (Check all that apply)**

|  |  |
| --- | --- |
| **Chemical Disposal** | **Hazardous Chemical** |
| **Routine scheduled hazardous waste pickup**  **No special disposal requirements** |  |
| **Neutralization** |  |
| **Sanitary Sewer** |  |
| **Other disposal: (Specify):** |  |
|  |  |
| **Carcass** |  |
| **Animal facility freezer and disposal service** |  |
| **Scheduled Hazardous waste pickup** |  |
| **Other disposal (Specify):** |  |
|  |  |
| **Excretion-contaminated Materials**  **(hazardous)** |  |
| **Disinfection (Specify):** |  |
| **Autoclave** |  |
| **Sanitary Sewer** |  |
| **Other Decontamination Method (Specify)** |  |

**Explain disposal methods: place in hazardous waste continaer provided by environmental protection and complete the form that accompanies the container. contact hazwaste@uwm.edu when full**

**IACUC Training**

**List personnel and indicate the type of training the person has received related to the use of the chemical. Also specify the date the person was trained and by whom, as well as the experience that person has with the chemical or procedure.**

|  |  |  |
| --- | --- | --- |
| **Personnel\*\*** | **Type of Training**  [NOTE: See the US&A Website for available training sessions.](https://uwm.edu/safety-and-assurances/) | **Experience**  (Yrs., Type work) |
|  | **CHP and Lab Safety**. Date trained      **Conducted By**  Lab Specific CHP Date trained     **Conducted By**  **Hazardous Waste**. Date trained      **Conducted By**  **Other(Specify)** Date trained     **Conducted By** |  |
|  | **CHP and Lab Safety**. Date trained      **Conducted By**  Lab Specific CHP Date trained     **Conducted By**  **Hazardous Waste**. Date trained      **Conducted By**  **Other(Specify)** Date trained     **Conducted By** |  |
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\*\*For approved IACUC procedures notify US&A to update this information when new individuals not listed above will be working with the hazardous chemicals

1. **IACUC SOP Reviewed and Approved (initialed) by:**

|  |
| --- |
| **Animal Care Program:**  **Laboratory Safety:**  **Environmental Protection:** |

**University Safety & Assurances Web Guidance for**

**Hazardous Chemical SOPs**

**Use the following links to go to web page.**

* + Laboratory Safety <http://wwwdev.uwm.edu/safety-health/lab-safety/>
  + Biosafety <http://wwwdev.uwm.edu/safety-health/biosafety/>
  + Carcinogens <http://wwwdev.uwm.edu/safety-health/rtk-health-hazards/>
  + Eyewash/ Safety Shower <http://wwwdev.uwm.edu/safety-health/laboratory-equipment/>
  + Flammable Liquid Storage <http://wwwdev.uwm.edu/safety-health/chem-safety/>
  + Fume Hood Procedures <http://wwwdev.uwm.edu/safety-health/laboratory-equipment/#General>
  + Hazardous Communication <http://wwwdev.uwm.edu/safety-health/chemrtk/>
    - Material Safety Data Sheets (source) <http://uwm.edu/safety-health/chemrtk/>
  + On-Line Safety Training <http://uwm.edu/safety-health/laboratory-training/>

Including:

* + - Laboratory Safety
    - Bloodborne Pathogens
    - Hazard Communication
    - Hazardous Waste Orientation
    - Mercury Spill Clean-up Procedures
  + Personal Protective Equipment <http://uwm.edu/safety-health/general-ppe/>
  + Sharps Disposal <http://uwm.edu/environmental-rotection/non-hazardous-waste/#a7>

**Appendix**

**Documentation of Training**

The individuals listed below have read and fully understand this Standard Operating Procedure. The individuals have received training from their Supervisor, Group Safety Representative (GSR) or Laboratory Manager/Graduate Student and are aware of all potential hazards and countermeasures related to this Standard Operating Procedure.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Name | Signature | E-Mail | Date | Trainer Initials |
| 1 |  |  | **@uwm.edu** |  |  |
| 2 |  |  | **@uwm.edu** |  |  |
| 3 |  |  | **@uwm.edu** |  |  |
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