Appendix C

Chemical Hazard Assessment Form
Complete and attach a Chemical Hazard Assessment form for EACH hazardous chemical listed in the SOP.

Chemical/ Reagent: **Formaldehyde solutions/ Formalin**

CAS#: 50-00-0

#1 Hazards – check all that apply.

- [ ] Acute toxicity
- [ ] Aspiration hazard
- [ ] Asphyxiant
- [ ] Carcinogen
- [ ] Corrosive to metal
- [ ] Combustible dust
- [ ] Eye - irritation
- [ ] Eye – serious damage

- [ ] Flammable
- [ ] Gas under pressure
- [ ] Organic peroxide
- [ ] Oxidizer
- [ ] Pyrophoric
- [ ] Reproductive toxin

- [ ] Respiratory sensitizer
- [ ] Self-heating
- [ ] Self-reactive
- [ ] Skin - corrosive
- [ ] Skin - irritant
- [ ] Skin - sensitizer
- [ ] Specific target organ toxicity (STOT)
- [ ] Water-reactive

**Other:**  **Respiratory irritant, Harmful to aquatic life**

Maximum quantity to be used or stored in the next 12 months.

- [ ] < 1L or 100 g
- [ ] 1 L or 100 g to 4L or 1 kg
- [ ] > 4L or 1 kg

Chemical state and concentration to be used

- [ ] Solid
- [ ] Gas
- [ ] Liquid or solution
- [ ] Dilute (<5%)
- [ ] Intermediate (5-25%)
- [ ] Concentrated (>25%)

Where will this material be stored?

- [ ] General storage (cabinet, shelf)
- [ ] Flammable cabinet
- [ ] Locked cabinet (toxins)
- [ ] Corrosive cabinet
- [ ] Household refrigerator-freezer
- [ ] Flammable-rated refrigerator-freezer

Incompatibles and reactives: **Heat, Flames, Sparks**

Secondary containment required for storage? *(UAA CHP strongly recommends secondary containment for corrosive (acid, base) and flammable solvent bottles larger than 500mL.)*

- [ ] No
- [ ] Yes – obtain containment compatible with chemical

Significant Hazard Protocol
*(UAA Laboratory Access Policy states ‘Individuals engaging in Significant Hazard Protocols must...place a “Protocol in Process” sign on all entry doors to the lab.)*

Is this chemical used in a Significant Hazard Protocol?
#2 Safety Controls and Equipment

**Engineering Controls**
This chemical must be used with the following (check all that apply)
- Chemical fume hood
- Biosafety cabinet
- Glove box
- Local exhaust (e.g. snorkel)
- Other: Click here to enter text.

Does this chemical require use of a designated area other than specified above? □ Yes □ No (Carcinogens, reproductive hazards and highly acute toxins require a designated area)
If yes, describe the designated area: Click here to enter text.

Does the area of use need to be decontaminated after use? □ Yes □ No (Designated areas for carcinogens, reproductive hazards and highly acute toxins require decontamination)
If yes, describe the decontamination procedure: Click here to enter text.

**Personal Protective Equipment (PPE)**
All recommended PPE is based on the most severe/ extreme conditions of exposure. PPE may be scaled back based on actual working quantities and/or conditions.

MANDATORY - Appropriate clothing. See Chemical Hygiene Plan for more information.

**Eye Protection** – Safety glasses/ goggles must have ANSI stamp and fit properly; goggles should be snug enough to prevent any splash from reaching the eyes.

- Safety glasses
- Splash-proof goggles
- Face shield (only in addition to glasses or goggles, NEVER as the sole source of eye protection)

**Body protection** – An appropriately-sized lab coat must be worn and fastened. Laboratory coat sleeves must be of sufficient length to prevent direct skin exposure while wearing gloves.

- Apron
- Lab Coat
- Flame-resistant Lab Coat
- Other Click here to enter text. Specify SDS recommended item.

**Hand protection** – Wear chemical-resistant gloves. REMOVE DISPOSABLE GLOVES EVERY TIME THEY BECOME CONTAMINATED OR YOU LEAVE THE LAB. WASH YOUR HANDS EVERY TIME YOU REMOVE YOUR GLOVES.

- Gloves
  - Disposable
  - Reusable

  Thickness 4 mil; 0.4 mm

  Length □ Standard □ Long

  Material □ Butyl
  □ Latex □ Neoprene □ Nitrile

  □ Thermal protection for: □ Heat □ Cold
Respiratory protection is generally not required for laboratory research, provided the appropriate engineering controls are employed. For additional guidance on respiratory protection, contact EHS.

#3 Monitoring and Exposure Assessment

Exposure Limits

☐ Not applicable

(Air concentration of chemical gas or vapor, or fiber particulate. Consult chemical SDS, AKOSH Air Contaminant Table-Z-1-A, or NIOSH Pocket Guide for values.)

Definitions of terms and abbreviations

- **Action Level** - Level of air contaminant at or above which OSHA requires the employer to take action
- **Ceiling** - Maximum level of air contaminant that should never be exceeded for any length of time.
- **IDLH** - Immediately Dangerous to Life and Health
- **PEL** - Permissible Exposure Limit - TWA concentration of air contaminant that must not be exceeded during any 8-hour work shift of a 40-hour workweek. OSHA/AKOSH term
- **REL** - Recommended Exposure Limit - TWA concentration of air contaminant that must not be exceeded during any 10-hour work shift of a 40-hour workweek. NIOSH term
- **STEL** - Short Term Exposure Limit - a 15-minute TWA concentration of an air contaminant that must not be exceeded at any time during a workday.
- **TWA** - Time Weighted Average - employee’s exposure to a specific air contaminant averaged over an 8-hour workday.

<table>
<thead>
<tr>
<th>Action level</th>
<th>AKOSH PEL TWA</th>
<th>NIOSH REL TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 ppm</td>
<td>0.75 ppm</td>
<td>0.016 ppm</td>
</tr>
<tr>
<td></td>
<td>2 ppm in 5 minutes</td>
<td>Click here to enter text.</td>
</tr>
<tr>
<td></td>
<td>0.1 ppm in 15 minutes</td>
<td></td>
</tr>
</tbody>
</table>

IDLH 20 ppm

☐ Check box if AKOSH Table or NIOSH guide indicate [skin] designation.

How will the exposure to this chemical be assessed?

☐ Professional judgement of PI/RLS
☐ Area monitoring
☐ Personal monitoring (badging)

Is medical surveillance required for users of this material?

☐ Yes
☐ No

OSHA requires medical surveillance for worker exposed to regulated hazardous chemicals, including but not limited to formaldehyde/formalin, phenol, benzene, inorganic arsenic, and lead, at or above the action level or STEL. If yes or unsure, please contact EHS for further information.

#4 OSHA Required Training

The use of certain chemicals may require training above that required by the OSHA Lab Standard, 29 CFR 1910.1450. These chemicals have their own OSHA standards and training requirements which are found in Subpart Z, 1910.1000-1096.

Does this chemical have its own OSHA standard?

☐ No
☐ Yes; 1910.1048

If yes, is there an exposure limit below which additional training is not required?

☐ No
☐ Yes; 0.1 ppm
#5 First Aid and Emergency Response

Are there first aid or emergency response procedures necessary for this material beyond rinsing with water?

- No

☐ Yes, specify in the Emergency Procedures section of the SOP.

This section is for any emergency procedures different from standard responses, or for additional emergency information due to the nature of materials or task. Include information on personal exposure / medical emergency as appropriate (e.g. Calgonate gel for hydrofluoric acid exposure).

#6 Spill Response

Small/ manageable spills

In the event of a minor spill or release that can be safely cleaned up using laboratory PPE and spill kit (Amphomag), spills or releases which have been contained within the laboratory (via secondary containment, in a fume hood, on a bench or the floor), spills of less than 500 mL of any flammable material, or spills of materials that do not require respiratory protection for cleanup:

Notify personnel in the area and keep people away from the area. Eliminate all sources of ignition.

Protect yourself:

- Review the SDS for the spilled material, or use your knowledge of the hazards of the material to determine the appropriate level of protection.
- Wearing appropriate PPE, clean up the spill with Amphomag following the directions provided in the spill kit. Collect spill cleanup materials in a tightly closed container or double plastic bags. Manage spill cleanup debris as hazardous waste. Contact EHS for waste pickup.
- Dispose of broken glass in a broken glass container – DO NOT put other materials in the broken glass container.

DO NOT clean up spills requiring respiratory protection – CALL EHS.

Minor spills not needing respiratory protection include: leaking specimen containers containing 10% formalin; a broken specimen container of up to 100 mL of 10% formalin; a container of 35% formalin > 100mL in a fume hood; a splash of 40% (concentrated) formalin onto a surface.

Large/ unmanageable spills

For highly reactive, highly acute toxin, spills or releases which have impacted the environment (via sink / sewer system, soil or air outside the building), spills larger than 500mL of any flammable material, or spill of any material requiring respiratory protection for cleanup:

Protect yourself and others:

- Contact PI/ RLS and EHS personnel on Emergency Phone Number list.
- Alert people in the vicinity of the spill, advise them to evacuate the immediate area.
- Restrict access to the area of the spill. Eliminate all sources of ignition on your way out.
- Evacuate to a safe area. Remain nearby to advise PI and EHS.

Lab-Specific (Biological/Chemical/Radiation Hazard specific) Procedures

Large spills outside of a chemical fume hood require respiratory protection. DO NOT
CLEAN UP – CALL EHS IMMEDIATELY for assistance. Examples of large spills include: multiple broken specimen jars that contained 10% formalin; partial or full container >100 mL of 35% formalin onto a bench or floor; a stock bottle of 10% formalin >500 mL onto a bench or floor; a single staff member who becomes injured and drops >2 specimen containers.

#7 Waste Disposal and Pollution Prevention

General hazardous waste disposal guidelines

Label Waste
- Affix hazardous waste label on all waste containers as soon as the first drop of waste is added to the container.
- DO NOT share waste containers with other research groups. Each research group shall maintain their own waste containers for their procedures.

Store Waste
- Store hazardous waste in closed containers, in secondary containment, and in your laboratory’s designated location. Waste containers MUST be closed at all times, except when waste is being added to the container.
- Waste containers are considered FULL when they contain approximately 75% of the maximum volume. DO NOT OVERFILL – this is an exposure hazard for all persons handling and disposing of the waste.

Dispose of Waste
- Call EHS or Lab Support (CAS only) to have full waste containers picked up for disposal by EHS.

Methods of Disposal
- ☐ Consumed during process
- ■ Neutralized as part of procedure
- ☐ Sink disposal (GHS non-hazardous liquids only – MUST HAVE EHS approval)
- ☐ Hazardous waste by EHS (will be lab-packed by a Hazardous Waste Management company if cannot go to a sanitary landfill; associated disposal costs may be assessed to your research or department budget)

Chemical specific instructions:
Collect waste formaldehyde solutions in a labeled waste container. Neutralize and dispose of waste formalin with Hyde-Away or similar product, following manufacturer’s instructions.