

Use of Paraformaldehyde (PFA)/Formalin

Purpose:

To provide guidance for the use of Paraformaldehyde (PFA) or Formalin in the laboratory and animal facility environment. PFA and Formalin are solutions widely used at UW-Madison in animal research as cell and tissue fixatives for scientific research and histology. Both PFA and Formalin release formaldehyde gas/vapors which have many hazardous properties.

Precautions:

The following information can be used to complete the Safety section of your animal protocol.

1. Chemical hazard agents – (Identify the category of the chemical): (*Select the following*)
 - Toxicant/Toxic Agent
 - Irritant (skin, eye, respiratory)
 - Carcinogen
 - Mutagen
2. Containment preparation – (Containment equipment required for the preparation of the chemical): (*Select one of the following*)
 - Fume Hood

OR

 - Ducted Biosafety Cabinet (BSC)
3. Containment animals – (Containment equipment required for chemical administration and handling animals after exposure to the chemical): (*Select one of the following*)
 - No special containment needed.
4. PPE needed - (for handling live animals, carcasses, or animal waste/dirty bedding): (*Select the following*)
 - Exam gloves – nitrile
 - Safety glasses/goggles
 - Lab coat or disposable gown
5. Waste Disposal: (disposal of animal waste/dirty bedding from animals after exposure to the chemical) (*Select both options and include additional information for Other*)
 - No special precautions need for waste/dirty bedding.

6. Carcass disposal: (Select the following)

- Pick up by EH&S for incineration.

7. Chemical human risk: (Add the following)

- PFA and formalin release formaldehyde vapors which are a known human carcinogen and mutagen, linked to many cancers. Even at low levels, vapors may cause skin, eye, and lung irritation and prolonged exposure can lead to the development of asthma-like respiratory symptoms and is toxic if inhaled or ingested. PFA is also a flammable that reacts strongly with many oxidizers, acids, and alkalis. It should be stored in a flammable storage cabinet. EOH monitors this.

Additional Information: PFA and formalin release vapors that can be hazardous to humans, especially within enclosed spaces. Therefore, Environmental Occupational Health (EOH) offers monitoring for this substance upon request. If you have questions or concerns about the use of PFA in your lab space, please contact EOH by filling out a workplace monitoring form here: <https://ehs.wisc.edu/workplace-safety/occupational-health/assessments-workplace-monitoring/>

References:

“Paraformaldehyde SDS”

<https://www.sigmaaldrich.com/US/en/sds/sial/p6148?userType=undefined>

National Institute of Environmental Health

<https://www.niehs.nih.gov/health/topics/agents/formaldehyde>