

Use of Per- and polyfluoroalkyl substances (PFAS)

Purpose:

To provide guidance for the use of Per- and polyfluoroalkyl substances (PFAS) in the laboratory and animal facility environment. PFAS are a group of synthetic chemicals that have been used in consumer products and industrial processes since the 1940s. These are considered 'forever chemicals' because they do not break down easily in the environment and can build up in people. Some examples include:

- Perfluorooctanesulfonic acid (PFOS)
- Perfluorooctanoic acid (PFOA)
- Perfluorononanoic acid (PFNA)
- Perfluorohexanesulphonic acid (PFHxS)

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 all of the following*)
 - Carcinogen
 - Reproductive Hazard/Teratogen
 - Toxicant/Toxic Agent
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*)
 - Fume Hood
 - OR**
 - Biosafety Cabinet (BSC)

NOTE: For Rodents: Microisolator or other containment type housing caging is recommended.

4. PPE needed - (for handling live animals, carcasses or animal waste/dirty bedding):
(*Select all of 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 Other and include additional information*)
 - Other: Double bag all waste and bedding. Contact Chemical Safety for pick up and disposal. *Contact Chemical Safety for pickup at <https://ehs.wisc.edu/disposal-services/chemical-disposal/>

6. Carcass disposal: (*Select the following*)
 - Pick up by EH&S for incineration.
7. Chemical human risk: (*Add the following*)
 - PFAS are a large group of chemicals which can have varying effects and toxicity levels in people. These ‘forever chemicals’ continue to build up in the tissues of the body. In general, PFAS are considered cancer-causing agents capable of significant organ damage. They also can interfere with hormones and reduce the ability of the body’s immune system to fight infections. PFAS can cause reproductive harm such as decreased fertility and damage to the unborn child. They are capable of causing harm to breast-fed children and can cause developmental delays and behavioral changes.

NOTE: Add any additional specific hazards that exist for the PFAS chemicals you are using.

References:

- “Our Current Understanding of the Human Health and Environmental Risks of PFAS” from the Environmental Protection Agency
<https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas>
- “Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research,” Fenton, et. al, 2021. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7906952/>