



DEFINITIONS

Formaldehyde (H₂CO) is routinely used for fixation of biological samples. Formalin is a saturated formaldehyde solution (usually 37% with methanol stabilizer).

Paraformaldehyde (PFA) is polymerized formaldehyde. PFA is used to make pure formaldehyde solutions or can be heated to create pure formaldehyde gas.

HAZARDS

- Carcinogen (confirmed human carcinogen)
- Sensitizer: may cause an allergic reaction
- Corrosive: irritant (skin, eyes, and respiratory tract)
- Reproductive toxin
- Suspected mutagen
- Acutely toxic (ingestion, inhalation, and skin contact)
- Highly flammable
- Eye contact can result in corneal damage or blindness



STORAGE AND TRANSPORTATION

- Store with flammables in a tightly closed and shatter-resistant containers.
- Store away from oxidizers, reducing agents, metals, and acids (not in cold room).
- Use secondary container for transport.

BEFORE WORKING WITH (PARA)FORMALDEHYDE

- Identify the nearest eyewash and safety shower. Verify that they are accessible and functional.
- Perform all operations in a certified chemical fume hood or other approved ventilation system.
- Designate a work area for formaldehyde and label it accordingly
 - Example: Formaldehyde Work Area: Danger! Toxic!

DURING WORK WITH (PARA)FORMALDEHYDE

- **AVOID INHALATION!**
 - All work with a solution >4% and all solids must be conducted in a chemical hood.
- **AVOID CONTACT!**
 - Wear appropriate PPE.
- If weighing solid, place the balance in the hood. Decontaminate with soap and water
- Keep all containers tightly closed when not in use.

AFTER WORK WITH (PARA)FORMALDEHYDE

Contact the Hazardous Waste Program Coordinator at EHS for any questions about disposal of formalin, formaldehyde, or paraformaldehyde waste.

PERSONAL PROTECTIVE EQUIPMENT



When working with paraformaldehyde, formalin, or formaldehyde solutions, it is essential to avoid inhalation and contact with the skin and eyes.

The minimum PPE requirements are:

- Nitrile gloves (need to be changed immediately if contaminated)
- Safety glasses or goggles
- Fully buttoned lab coat with sleeves
- Closed toe shoes

FIRST AID

Signs of Exposure Include:

Eye, nose, and throat irritation, excessive tearing, skin rashes, itching, shortness of breath, coughing, wheezing, and changes in lung function.

Skin Contact

Immediately remove all contaminated clothing, including footwear. Flush the exposed area for 15 minutes. Seek medical attention in case of exposure.

Eye Contact

Using eyewash, flush eyes while holding eyelids away from exposed eye for at least 15 minutes. Then seek medical attention without delay. Do not remove contact lenses on own.

Inhalation

If fumes are inhaled, then leave the area. If in respiratory distress, then call 911.

