



Working Safely With Formaldehyde

This handout is an informational supplement to the Boston University Formaldehyde Safety Program. Given that formaldehyde is a known human carcinogen and skin sensitizer, it is important to limit exposure to and contact with formaldehyde.

I. *Common Uses of Formaldehyde*

Formaldehyde is used as a preservative, a hardening and reducing agent, a corrosion inhibitor, a sterilizing agent, and in embalming fluids. Formalin is a common aqueous form of Formaldehyde. *Always Review the Safety Data Sheet (SDS) for the specific chemical that you will be using, prior to use.*

II. *Acute Exposure Signs/Symptoms*

Type of contact	Health Effects
Ingestion (swallowing)	Liquids containing 10% to 40% formaldehyde cause severe irritation and inflammation of the mouth, throat, and stomach. Severe stomach pains will follow ingestion with possible loss of consciousness and death.
	Ingestion of dilute formaldehyde solutions (0.03% to 0.04%) may cause discomfort in the stomach and pharynx.
Inhalation (breathing)	Formaldehyde is highly irritating to the upper respiratory tract and eyes.
	0.5 to 2.0 parts per million (ppm) may irritate the eyes, nose, and throat of some individuals.
	3 to 5 ppm also cause tearing of the eyes and are intolerable to some persons.
	10 to 20 ppm cause difficulty in breathing, burning of the nose and throat, coughing, and heavy tearing of the eyes
	25 to 30 ppm causes severe respiratory tract injury leading to inflammation and accumulation of fluid in the lung
	100 ppm is immediately dangerous to life and health. Deaths from accidental exposure to high concentrations of formaldehyde have been reported.
Skin	Formaldehyde is a severe skin irritant and a sensitizer.
	Contact with Formaldehyde causes white discoloration, smarting, drying, cracking, and scaling.
	Prolonged and repeated contact can cause numbness and a hardening or tanning of the skin.
	Previously exposed persons may react to future exposure with an allergic eczematous dermatitis or hives.
Eye	Formaldehyde solutions splashed in the eye can cause injuries ranging from transient discomfort to severe, permanent corneal clouding and loss of vision.
	The severity of the effect depends on the concentration of formaldehyde in the solution and if the eyes are flushed with water immediately after the incident. Note: The perception of formaldehyde by odor and eye irritation becomes less apparent over time, as one gets used to formaldehyde exposure. This can lead to a hazardous exposure if a worker is relying on odor or irritation to alert them to the potential for exposure.

Table 1. From Table HT-1 “Acute Health Effects of Formaldehyde Exposure.” www.lni.wa.gov (June 2009).

III. Personal Protective Equipment (PPE)

It is important to select the proper PPE for the task you are working on. When in doubt, read the Safety Data Sheet (SDS), ask your Lab Instructor, or Contact BU Environmental Health & Safety (617-353-4094).

To Protect Your...	Use...
Eyes	Splash Proof Goggles
Hands	Nitrile Gloves (double glove, if necessary)
Body	Clothing Impervious to Formaldehyde, to Protect Against Accidental Skin Absorption

Note: Contaminated Clothing should be disposed of or cleaned as appropriate.

IV. Signage and Labels

Containers for holding contaminated clothing or equipment must be labeled, and areas used for storing contaminated clothing or equipment posted with Signage.



IV. In Case of Exposure

In Case of	Your Immediate Action
Eye Contact	Remove contact lenses, if you wear them, while flushing the eyes. Immediately Flush Eyes with Plenty of Water for at Least 15 Minutes, lifting eyelids occasionally.
Skin Contact	Remove Contaminated Clothing. Flush Skin with Plenty of Water (soap and water, if available) for at Least 15 Minutes.
Inhalation	Remove to Fresh Air. Seek Medical Attention Immediately.
Ingestion	Seek Medical Attention Immediately.

V. Emergency Contact Information

If there is a...	Call...
Spill	617-353-2105 (Charles River Campus), 617-414-6666 (BUMC)
Medical Emergency	617-353-2121 (Charles River Campus), 617-414-6666 (MED)
Lab-Related Exposure	617-414-7647 (Anywhere in BU)