










Methanal

including formaldehyde, formalin

Substance	Hazard	Comment
Methanal (formalaldehyde) Gas	  HEALTH TOXIC	DANGER: toxic if swallowed, inhaled or in contact with skin; causes severe skin burns and eye damage; may cause cancer or allergic skin reaction; suspected of causing genetic defects. For a 15-minute exposure, concentration should not exceed 2.5 mg m ⁻³ . Vapour may arise when handling solution. Commonly supplied for laboratory use as a saturated solution, about 13 M (40%).
Very concentrated methanal solution (formalin) If 10M (30%) or more	 CORROSIVE	Methanal is used to make polymers, eg for cavity wall insulation – there have been suggestions that small amounts may be released into houses if polymerisation is incomplete. A methanal resin is also used as a binding agent in MDF and machining it may cause decomposition and release methanal.
Concentrated methanal solution (formalin) If less than 10M (30%) but 8M (25%) or more	  HEALTH HARM.  CORROSIVE	DANGER: causes severe skin burns and eye damage; harmful by skin contact or if swallowed; irritating to eyes, skin & respiratory system; may cause cancer or allergic skin reaction; suspected of causing genetic defects.
Moderately dilute methanal solution (formalin) If less than 8M (25%) but more than 0.07 M (0.2%)	 HEALTH HAZARD  HARMFUL	DANGER: Harmful by skin contact (if ≥ 5M (15%)). Harmful if swallowed; irritating to skin, eyes & respiratory system (if ≥ 1.7 M (5%)). Suspected of causing genetic effects (if ≥ 0.3M (1%)). May cause cancer or allergic skin reaction. A 1.3 M (4%) solution was commonly used in the past as a preservative for biological specimens. A solution of concentration between 0.07 M (0.2%) and 0.3 M (1%) was used in the [past for extracting earthworms from soil but there are safer alternatives which are also less damaging to the worms.
Dilute methanal solution (formalin) If less than 0.07 M (0.2%) but more than 0.03 M (0.1%)	 HEALTH HAZARD	DANGER: may cause cancer.
Very dilute methanal if less than 0.03M (0.1%)	LOW HAZARD	-

Typical control measures to reduce risk

- Wear appropriate eye protection (depending on the concentration) and, for all except dilute solutions of methanal, wear protective gloves (preferably nitrile).
- Open bottles of all except dilute solutions of methanal in a fume cupboard.
- **Do not use near naked flames; if heating is necessary, use an electrically-heated water bath a kettle.**

Assessing the risks

- **What are the details of the activity to be undertaken? What are the hazards?**
- **What is the chance of something going wrong?**
- **How serious would it be if something did go wrong?**
- **How can the risk(s) be controlled for this activity?**
eg, can it be done safely? Does the procedure need to be altered? Should goggles or safety spectacles be worn?

Emergency action

- **In the eye** Immediately flood the eye with gently-running tap water for 10 minutes. Consult a medic.
- **Vapour breathed in** Remove the casualty to fresh air. Keep him/her warm. Consult a medic if breathing is difficult.
- **Swallowed** Do no more than wash out the mouth with water. Do **not** induce vomiting. Consult a medic.
- **Spilt on the skin/clothing** Remove contaminated clothing. Wash the affected area and clothing with plenty of water.
- **Spilt on the floor, bench, etc** Put out all Bunsen flames. Wipe up small amounts with a cloth and rinse well. For larger amounts, open windows, if fumes are not too strong cover with mineral absorbent (eg, cat litter), scoop into a bucket and add water.