

Methanal

including formaldehyde, formalin

Substance	Hazard	Comment
Methanal (formaldehyde) <i>Gas</i>	 HEALTH HAZARD  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 dispensing/transferring solution. Commonly supplied for laboratory use as a saturated solution, about 13 M (40%). 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.
Very concentrated methanal solution (formalin) <i>If 10 M (30%) or more</i>	 CORROSIVE	
Concentrated methanal solution (formalin) <i>If less than 10 M (30%) but 8 M (25%) or more</i>	 HEALTH HAZARD  HARMFUL  CORROSIVE	DANGER: causes severe skin burns and eye damage; harmful by skin contact or if swallowed; irritating to eyes, skin and respiratory system; may cause cancer or allergic skin reaction; suspected of causing genetic defects.
Moderately dilute methanal solution (formalin) <i>If less than 8 M (25%) but more than 0.07 M (0.2%)</i>	 HEALTH HAZARD  HARMFUL	DANGER: Harmful by skin contact (if ≥ 5M (15%)). Harmful if swallowed; irritating to skin, eyes and 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) <i>If less than 0.07 M (0.2%) but more than 0.03 M (0.1%)</i>	 HEALTH HAZARD	DANGER: may cause cancer.
Very dilute methanal <i>If less than 0.03 M (0.1%)</i>	Currently not classified as hazardous	–

Typical control measures to reduce risk

- Wear appropriate eye protection (depending on the concentration) and 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 or hot water from 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 all emergency situations, alert the responsible adult immediately. Be aware that actions may include the following:

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| • In the eye | Irrigate the eye with gently-running tap water for at least 20 minutes. Call 999/111. |
| • Vapour breathed in | Remove the casualty to fresh air. Keep them warm. Call 999/111 if breathing is difficult. |
| • In the mouth/swallowed | Do no more than rinse and spit with drinking water. Do not induce vomiting. Call 999/111. |
| • 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. |