





## Ethanoic (acetic) acid

also applies to methanoic (formic) acid

Substance	Hazard	Comment
<b>Ethanoic acid (acetic acid)</b> <i>Pure liquid, 'glacial'</i> Also <b>methanoic (formic) acid</b> <i>usually supplied as 90% solution (about 20 M)</i>	  CORROSIVE FLAMMABLE	DANGER: both acids cause severe skin burns and eye damage. Ethanoic acid only: flammable vapour and liquid. For a 15-minute exposure, the concentration of methanoic acid vapour in the atmosphere should not exceed $28.8 \text{ mg m}^{-3}$ . Some descalers for kettles, irons etc use methanoic acid.
<b>Concentrated acids</b> Solution in water <i>(If 4 M or more ethanoic acid; 2.2 M or more methanoic acid)</i>	 CORROSIVE	DANGER: both acids cause severe skin burns and eye damage.
<b>Moderately-concentrated acids</b> <i>(If less than 4 M but 1.7 M or more ethanoic acid; less than 2.2 M but 0.4 M or more methanoic acid)</i>	 IRRITANT	WARNING: both acids are irritating to the eyes and skin. Ant venom is about 1.5 M methanoic acid; stinging nettles are less concentrated.
<b>Dilute acids</b> <i>(If less than 1.7 M ethanoic acid; less than 0.4 M methanoic acid)</i>	LOW HAZARD	Both acids may still cause harm in the eyes or in a cut. This includes vinegar (about 0.8 M ethanoic acid).

**Typical control measures to reduce risk**

- Use the lowest concentration possible.
- Use the smallest volume possible.
- Wear eye protection for all but the most-dilute solutions; goggles for concentrated acids.
- Wear protective gloves if anything more than tiny amounts of concentrated acid is handled.
- Avoid breathing gas or fumes from concentrated solutions, eg, by use of a fume cupboard.

**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?**  
*eg, choking fumes if concentrated acid is over-heated.*
- **How serious would it be if something did go wrong?**  
*NB We put vinegar on chips!*
- **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** Flood the eye with gently-running tap water for 10 minutes. Consult a medic.
- **Vapour breathed in** Remove to fresh air. Consult a medic if breathing is difficult.
- **Swallowed** Do no more than wash out the mouth with drinking water. Do **not** induce vomiting. Consult a medic.
- **Spilt on the skin or clothing** Remove contaminated clothing. Then drench the skin with plenty of water. If a large area is affected or blistering occurs, consult a medic.
- **Spilt on the floor, bench, etc** Wipe up small amounts with a damp cloth and rinse it well.  
For larger amounts, and especially for (moderately) concentrated acid, cover with mineral absorbent (eg, cat litter) and scoop into a bucket. Neutralise with sodium carbonate. Rinse with plenty of water.