Boron compounds

including **borax**, **boric acid**, **sodium perborate** & **sodium borohydride**

Substance	Hazard	Comment
Borax (sodium tetraborate, disodiumtetraborate-10-water) *Solid and concentrated solutions (if 80 g dm^{-3}, ie 0.2 M, or more)*	 **HEALTH HAZARD**	DANGER: may damage fertility and the unborn child. It has been/is used in some laundry and cleaning products, as a fire retardant and as a food additive (E285, to aid food preservation and improve the texture).
Borax *Dilute solutions (if less than 80 g dm^{-3}, ie less than 0.2 M)*	**Currently not classified as hazardous**	The borax solution commonly used for making slime is usually either 80 g dm^{-3} if using low molar mass PVA (< 85 000 g mol-1) or 40 g dm^{-3} if using high molar mass PVA (> 85 000 g mol-1).
Boric acid (boracic acid) *Solid and concentrated solutions (if 0.9 M or more)*	 **HEALTH HAZARD**	DANGER: may damage fertility and the unborn child. In solution used as a mild antiseptic. The powder is used as an insecticide and to treat wood that is rotten and as a food additive (E284, to aid food preservation and improve the texture).
Boric acid *Dilute solutions (if less than 0.9 M)*	**Currently not classified as hazardous**	–
Sodium perborate (sodium peroxoborate-4-water)	  **OXIDISING** **HARMFUL**   **CORROSIVE** **HEALTH HAZARD**	DANGER: oxidiser; harmful if swallowed; causes serious damage to eyes; may cause respiratory irritation; may damage unborn child; suspected of damaging fertility. Used in the past in detergents, bleaches, cleaning products and for tooth-whitening but almost entirely replaced now. Releases oxygen if heated above 60°C, or in presence of catalyst.
Sodium borohydride (sodium tetrahydridoborate(III))	  **FLAMMABLE** **CORROSIVE**  **TOXIC**	DANGER: Contact with water liberates flammable gases which may ignite spontaneously (hydrogen); toxic if swallowed; causes skin burns and eye damage; may damage fertility or the unborn child. Widely used in chemistry as a reducing agent.

Typical control measures to reduce risk

- Wear eye protection when transferring/dispensing hazardous solids and solutions.
- Wear gloves when transferring these solids – take particular care to avoid skin contact.
- Avoid the risk of inhaling dust from sodium tetraborate or boric acid, eg by weighing in a fume cupboard that is **not** switched on and has the sash partially down.
- Avoid naked flames when transferring/dispensing sodium borohydride.
- Slime made using sodium tetraborate should not be taken home; the slime should only be handled wearing gloves.

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:

- In the eye — Irrigate the eye with gently-running tap water for at least 20 minutes. Call 999/111.
- 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 or clothing — Brush solid off contaminated clothing. Irrigate the affected area with gently-running tap water for at least 20 minutes as appropriate. Call 999/111 as appropriate. Rinse clothing.
- Spilt on the floor, bench, etc — Brush up solid spills, trying to avoid raising dust, then wipe with a damp cloth (EXCEPT sodium borohydride). Wipe up small solution spills with a cloth and rinse the cloth well.

