














## Chromium and its compounds

including chromium(III) salts, chrome alum, chromates and dichromates

Substance	Hazard	Comment
Chromium (metal) <i>Solid</i>	Currently not classified as hazardous	Chromium plating gives a shiny, protective surface on steel.
Chromium(III) oxide <i>Solid</i>		It is used as a green pigment, eg in pottery.
Chromium(III) sulfate <i>Solids and solutions</i>		It has various chemical formulae. It is variously red or purple.
Chromium(III) potassium sulfate(VI) (chrome alum) <i>Solid and most solutions</i>	 IRRITANT	WARNING: irritating to eyes and skin (if 0.4 M or more). Often used for crystal growing. Currently not classified as hazardous if less than 0.4 M.
Potassium chromate(VI) <i>Solid and solutions</i>	  HEALTH HAZ. IRRITANT  ENVIRONMENTAL HAZARD	DANGER: skin & serious eye irritant; genetic effects, cancer by inhalation and allergic skin reaction. Very toxic to aquatic life (if 0.9 M or more). DANGER: respiratory irritant (if 0.4 M or more). DANGER: skin sensitiser (if 0.04 M or more). DANGER: serious health hazard (if 0.01 M or more). Currently not classified as hazardous if less than 0.01 M.
Sodium chromate(VI) <i>Solid and solutions</i>	  TOXIC CORROSIVE   HEALTH HAZARD ENVIRON. HAZARD	DANGER: toxic if swallowed; harmful in contact with skin; causes severe skin burns and eye damage; fatal if inhaled; may cause allergic skin reaction; may cause allergy or asthma if inhaled; may cause cancer or genetic defects; may damage fertility or the unborn child; causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life (if 0.8 M or more). DANGER: corrosive to skin and eyes; harmful by ingestion; respiratory irritant (if 0.2 M or more). DANGER: irritating to skin and eyes; skin and respiratory sensitiser; serious health hazard (if 0.01 M or more). Currently not classified as hazardous if less than 0.01 M.
Ammonium, potassium, sodium dichromates(VI) <i>Solid and solutions</i>	  OXIDISING TOXIC   CORROSIVE HEALTH  ENVIRONMENTAL HAZARD	DANGER: oxidiser; toxic if swallowed; harmful in contact with skin; causes severe skin burns and eye damage; fatal if inhaled; may cause allergic skin reaction; may cause allergy or asthma if inhaled; may cause cancer or genetic defects; may damage fertility or the unborn child; causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life (if 0.4 M or more). Solid ammonium dichromate decomposes if heated and will explode in confined spaces. It was used in indoor fireworks. DANGER: corrosive to skin and eyes; harmful by ingestion, respiratory irritant (if 0.1 M or more). DANGER: irritating to skin and eyes; skin and respiratory sensitiser; serious health hazard (if 0.004 M or more). Currently not classified as hazardous if less than 0.004 M.
Lead chromate(VI)		See CLEAPSS Student Safety Sheet 43

## Typical control measures to reduce risk

- Use the lowest possible concentration; wear eye protection; use of gloves for chromates/dichromates.
- For volcano experiment, prevent exposure to dust by using a fume cupboard or mineral-wool plug in the vessel.
- Avoid inhaling chromate/dichromate dust or spray (eg during electrolysis).

## 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 chromate or dichromate dust or solution is accidentally inhaled.*
- 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 Remove contaminated clothing. Irrigate the affected area with gently-running tap water for at least 20 minutes. Call 999/111 as appropriate. Rinse clothing.
- Spilt on the floor, bench, etc Wear eye protection and gloves. Scoop up the solid. Rinse the area with water and wipe up, rinsing repeatedly until no colour remains. Rinse the mop or cloth thoroughly.