














## Chromium &amp; its compounds

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

Substance	Hazard	Comment
<b>Chromium</b> (metal) Solid	LOW HAZARD	Chromium plating gives a shiny, protective surface on steel.
<b>Chromium(III) oxide</b> Solid	LOW HAZARD	It is used as a green pigment, eg, in pottery.
<b>Chromium(III) sulfate</b>	LOW HAZARD	Solid & solutions. See below for chromium potassium sulfate.
<b>Chromium(III) potassium sulfate(VI) (chrome alum)</b> Solid and most solutions	 IRRITANT	WARNING: irritating to eyes and skin (if 0.4 M or more). Often used for crystal growing. LOW HAZARD if less than 0.4 M.
<b>Potassium chromate(VI)</b> Solid and solutions	  HEALTH IRRIT.  ENVIR.	DANGER: skin & serious eye irritant; genetic effects, cancer by inhalation and allergic skin reaction. Vary 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) LOW HAZARD if less than 0.01 M
<b>Sodium chromate(VI)</b> Solid and solutions	  TOXIC CORRO.   HEALTH ENVIR.	DANGER: toxic if swallowed; harmful in contact with skin; causes severe skin burns & 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 & respiratory sensitiser; serious health hazard (if 0.01 M or more). LOW HAZARD if less than 0.01 M
<b>Ammonium, potassium, sodium dichromates(VI)</b> Solid and solutions	  OXID. TOXIC   CORR. HEALTH  ENVIRON.	DANGER: oxidiser; toxic if swallowed; harmful in contact with skin; causes severe skin burns & 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 & respiratory sensitiser; serious health hazard (if 0.004 M or more). LOW HAZARD if less than 0.004 M
<b>Lead chromate(VI)</b>		See CLEAPSS Student Safety Sheet 43

**Typical control measures to reduce risk**

- Use the lowest possible concentration; wear eye protection; consider the use of gloves for chromates/dichromates.
- For volcano experiment, prevent exposure to dust by the use of 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 the eye** Flood the eye with gently-running tap water for at least 10 minutes. Consult a medic.
- **Swallowed** Do no more than wash out the mouth with water. Do **not** induce vomiting. Consult a medic.
- **Spilt on the skin or clothing** Remove contaminated clothing and rinse until no colour remains. Wash off the skin with plenty of water. If skin contamination is more than small, consult a medic.
- **Spilt on 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.