








## Sodium and potassium sulfites, metabisulfites, hydrogensulfites, thiosulfates and persulfates

Substance	Hazard	Comment
<p><b>Sodium &amp; potassium sulfite [sulfate(IV)]</b>  <b>Sodium &amp; potassium metabisulfite [disulfate(IV)]</b>  <i>Solid and concentrated solution (if 0.15 M or more)</i></p>	  <b>HARMFUL</b> <b>CORROSIVE</b>	<p>DANGER: Harmful if swallowed, cause serious eye damage. With acids, produce sulfur dioxide (SO<sub>2</sub>) (a TOXIC gas, see <i>Sheet 52</i>); do not inhale. Smell of SO<sub>2</sub> due to acidification by CO<sub>2</sub> in air.</p> <p>Approved food additives: sodium sulphite E221, potassium sulphite E225, sodium metabisulfite E223, potassium metabisulfite E224 all used as preservatives.</p> <p>For a 15-minute exposure, concentration of metabisulfite in the atmosphere should not exceed 15 mg m<sup>-3</sup>.</p>
<p><b>Sodium &amp; potassium sulfite [sulfate(IV)]</b>  <b>Sodium &amp; potassium metabisulfite [disulfate(IV)]</b>  <i>Dilute solution (if less than 0.15 M)</i></p>	<p>Currently not classified as hazardous</p>	<p>They smell of sulfur dioxide due to acidification by carbon dioxide in the air; do not inhale.</p>
<p><b>Sodium &amp; potassium hydrogensulfite [hydrogensulfate(IV)]</b>  <i>Concentrated solution (if 0.15 M or more)</i></p>	  <b>HARMFUL</b> <b>CORROSIVE</b>	<p>DANGER: Harmful if swallowed, cause serious eye damage. With acids, produce sulfur dioxide (SO<sub>2</sub>) (a TOXIC gas, see <i>Sheet 52</i>); do not inhale. Smell of SO<sub>2</sub> due to acidification by CO<sub>2</sub> in air.</p> <p>Sodium and potassium hydrogensulfites are approved food additives, E222 and E228, as preservatives. The pure solid NaHSO<sub>3</sub> does not exist. Products sold as bisulfite contain metabisulfite.</p>
<p><b>Sodium &amp; potassium metabisulfite [disulfate(IV)]</b>  <i>Dilute solution (if less than 0.15 M)</i></p>	<p>Currently not classified as hazardous</p>	<p>Although sodium metabisulfite solid is Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>, it behaves as sodium hydrogensulfite, NaHSO<sub>3</sub>, in solution.</p>
<p><b>Sodium &amp; potassium thiosulfate</b>  <i>Solid and solutions</i></p>	<p>Currently not classified as hazardous</p>	<p>Produce sulfur (see <i>Sheet 82</i>) &amp; sulfur dioxide (a TOXIC gas, see <i>Sheet 52</i>) with acids, including carbon dioxide. Carbon dioxide may cause solutions to go cloudy.</p>
<p><b>Sodium &amp; potassium persulfate [peroxodisulfate(VI)]</b>  <i>Solid and most solutions (if 0.04 M or more)</i></p>	   <b>OXIDISING</b> <b>IRRITANT</b> <b>HEALTH HAZARD</b>	<p>Danger: oxidisers; skin irritants; cause serious eye irritation; harmful if swallowed; may cause respiratory irritation, allergy or asthma. Sodium persulfate is used for bleaching hair, etching printed-circuit boards and to initiate polymerisation reactions.</p> <p>Solutions are currently not classified as hazardous if less than 0.04 M.</p>
<p><b>Sodium sulfate(VI) &amp; hydrogensulfate(VI)</b> – See <i>CLEAPSS Student Safety Sheet 34</i>.</p>		

### Typical control measures to reduce risk

- Use the smallest quantity or concentration possible.
- Wear eye protection.
- Take care not to inhale sulfur dioxide; asthmatics should be especially careful; use a fume cupboard to avoid exposure.

### 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 *accidental inhalation of sulfur dioxide when opening a bottle or dissolving a solid in water.*
- 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. Wipe up solution spills with a cloth and rinse it well.